



AFFORDABLE & EFFECTIVE
FENCE INTRUSION POINT ID

VibraSector[®] from Detection Technologies represents the latest development in the field of fence intrusion detection systems which offer accurate location of hostile events occurring at any point along the perimeter of a protected site.

VibraSector[®] utilises Detection Technologies' tried and tested VibraTek[®] sensor cable of which more than 250km has been installed on some of the most security-conscious sites in the world including prisons, airports, power stations, military establishments, as well as many sensitive industrial facilities.

Each VibraSector[®] analyser offers the ability to monitor up to 1000 metres of VibraTek[®] sensor cable which may be segmented into 100 sub-zones so that the location of intruder-related activity detected by the sensor cable may be identified to an accuracy of 1%.

Each VibraSector[®] sub-zone can be allocated it's own set of detection parameters so that variations in fence quality and type may be accommodated within a single system without incurring false alarms or detection 'blind spots' that would be inevitable without such flexibility.

Unlike other systems claiming to offer intrusion point location capability, VibraSector[®] provides high quality audio verification in which audio signatures resulting from hostile events are stored in digital format so that they may be recalled and replayed from any remote location. This feature is a valuable tool that may be used by security staff to confirm received alarms as being the result of genuine intrusions.

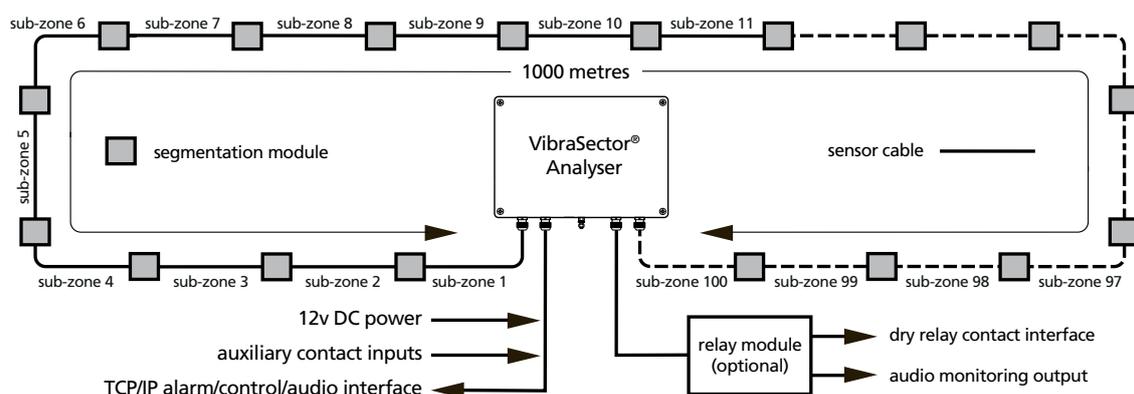
VibraSector[®] is fully compatible with industry standard IP networks to ensure that integration and communication with a security management system is easily accomplished. All system configuration commands, alarm information and digital audio are accessible through the IP connection of each VibraSector[®] analyser.

Integration with legacy control equipment is achieved using the VibraSector[®] relay module in which a relay contact can be allocated to every detection sub-zone so that a simple, dry contact relay interface may be easily implemented.

The unique properties of the VibraTek[®] sensor cable allows mixing and matching of 'live' sensor cable with 'dead' interconnecting cable so that non-sensitive areas may be inserted as required into the site perimeter while still maintaining the capability to protect up to 1000 metres of fence with 'live' sensor cable.

System Architecture

A typical VibraSector[®] system comprises a VibraSector[®] signal analyser connected to a loop of VibraTek sensor cable divided into sub-zones by a series of VibraSector[®] segmentation modules. The following schematic depicts a typical ring configuration.



System Architecture

Each VibraSector® analyser can monitor and control up to 1000 metres of VibraTek 3G® sensor cable with up to 100 segmentation modules.

Segmentation modules defining the physical sub-zones are entirely passive, and require no power or data connections. Additionally, each segmentation module is fully sealed making it suitable for all external environments.

Each segmentation module includes all components necessary to fully integrate each module with the VibraTek 3G® sensor cable.

Sub-zone lengths may be set to any length to suit site requirements and can easily be re-positioned in the event that such requirements and hence sub-zone positions need to be altered.

Sub-zones may be combinations of sensor cable and 'dead' cable if site conditions dictate that non-sensitive sections are required within a sub-zone in order to bridge natural barriers between sub-zones such as roads or ditches.

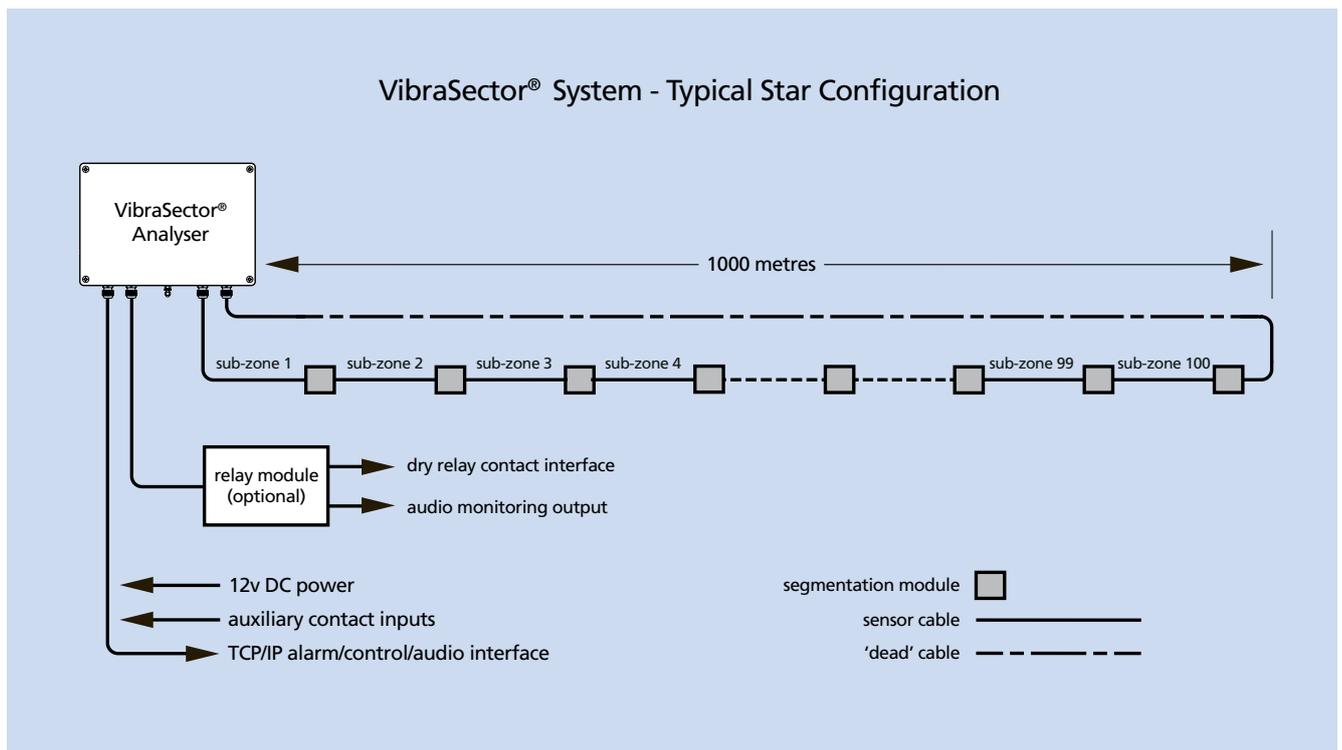
Each VibraSector® analyser provides a facility to monitor 4 relay contact inputs to simplify the integration of 3rd party detection systems into the overall security system.

The VibraSector® analyser also incorporates a sophisticated sensor cable tamper circuit so that, as well as detecting any damage to the integrity of the sensor cable, the position of such damage is also indicated.

An optional external relay module may be 'paired' with a VibraSector® analyser residing on the same local area network. This allows the relay module to be located at any point on the network. The external relay module also provides a facility to monitor the audio generated by the sensor sub-zones at the location of the relay module.

In cases where multiple VibraSector® analysers are used to cover larger sites, the sensor array may be installed in a star configuration rather than the ring configuration depicted previously. In this configuration, the remote end of the sensor cable array is returned to the VibraSector® analyser using a simple twisted pair 'dead' cable.

This configuration is depicted as shown:

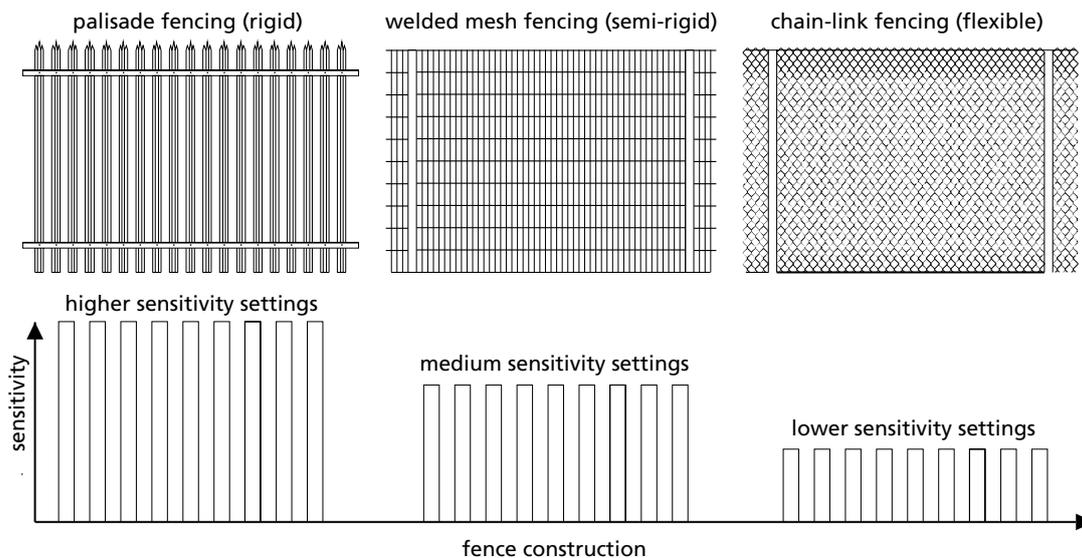


Sensor Segmentation

VibraSector® works by sub-dividing a length of sensor cable into a series of discrete segments. Powerful monitoring and analysis processes embedded within the VibraSector® analyser enable accurate identification of the origin of the signals detected by the sensor cable.

The VibraTek 3G® sensor cable is segmented using a special module which is introduced into the sensor cable at intervals to suit the site requirements. Sensor cable segments separated by these modules are referred to as sub-zones with each sub-zone having a unique set of detection parameters.

Sensitivity settings and fence types



VibraSector® allows different detection settings for each fence type within the protected perimeter

This powerful capability ensures optimum performance even when variations in fence construction are included within the protected perimeter since each different fence type can be allocated it's own set of detection parameters.

Additionally, since each sub-zone may be any length, gates and other 'non-fence' sections of the perimeter may be allocated sub-zone lengths that encompass only those features.

A maximum of 100 sub-zones can be accommodated by the system thereby providing a positional accuracy of 1%.

In terms of sub-zone length, a system utilising the maximum amount of sensor cable (1000 metres) and sub-zones (100) would result in a sub-zone length of 10 metres. This is accepted in the industry as being more than adequate for virtually every security application.

Shorter sub-zones may be implemented simply by using the maximum number of segmentation modules within a total sensor cable length which is less than the permitted maximum. For example, if the total perimeter to be protected is 500 metres and 100 segmentation modules are used, each sub-zone length would be 5 metres (assuming equal sub-zone lengths).

Each segmentation module incorporates plug-in connectors to facilitate easy and reliable connection between sensor cable and segmentation module. These connectors are encapsulated within the module housing and are fully protected against all environmental conditions.

Audio Capability

A powerful feature of the VibraSector® system is its capability to monitor and store audio signatures from any or all of the sensor sub-zones.

Live audio may be selected so that activity on any sub-zone may be monitored and in the event of an alarm activation, the audio signal produced by the active sub-zone is digitised and stored and may subsequently be recalled and replayed as required.

Each sub-zone maintains an audio buffer capable of storing up to 8 audio signatures with each signature offering pre and post alarm audio to assist security personnel to verify alarm activity.

System Integration

VibraSector® offers three options for integrating with 3rd party control and annunciation systems as follows.

Option 1 – Internal Relay Module

Each VibraSector® analyser can be fitted with an internal relay module that provides 10 relay contact outputs to implement a low level interface between VibraSector® and 3rd party annunciation or control equipment. Such equipment may include alarm panels and simple mimic displays. The relay outputs provided may be mapped to one or more sub-zones monitored by the VibraSector® analyser.

Option 2 – External Relay Module

An external relay module providing up to 100 relay outputs can be 'paired' with a VibraSector® analyser across a TCP/IP network. This module allows each sub-zone monitored by a VibraSector® analyser to be allocated a unique alarm relay output.

The external relay module may be located anywhere on the network on which the corresponding VibraSector® analyser resides.

The external relay module also provides the capability to monitor the audio signals generated by the VibraTek® sensor cable at the location of the relay module.

When options 1 & 2 described above are implemented, VibraSector® would normally be operating in a 'standalone' mode where all detection parameters and system configuration will have been carried out during system commissioning using Detection Technologies' proprietary 'VESPA' engineering software package.

Option 3 – TCP/IP Interface

This option provides the most comprehensive integration capabilities and, in cases where VibraSector® is monitored and controlled by a 3rd party security management system (SMS), a customised software driver will be needed to enable the SMS to access all system configuration functions within VibraSector®.

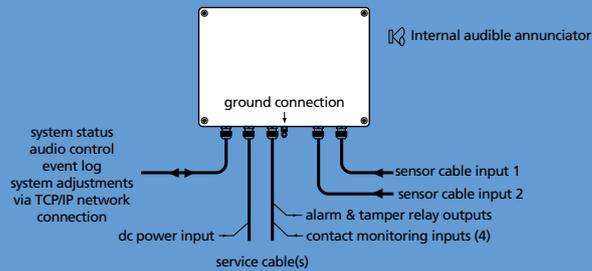
Two levels of integration are possible using the TCP/IP connection route as follows.

1. Alarm information only is passed to the 3rd party SMS using a UDP protocol operating on one software port while system configuration functions are provided by calling up Detection Technologies' own 'VESPA' engineering software package on a different software port.
2. A full engineering interface may be implemented by the SMS manufacturer based on protocols provided by Detection Technologies Ltd.

The first option offers a faster integration route while the second option offers greater functionality.



VibraSector® Electrical Specification



Inputs

- Power supply port: (1) input voltage range: 9 – 24v DC
current consumption @ 12v dc: 175 mA
- Sensor Cable: (2) VibraTek® 3G sensor cable
- Monitored Contacts: (4) dry (volt-free) switch/relay contacts

Outputs

- Audio Monitoring: (1) 600 ohms isolated audio output @ 0dBm level
- Status Relays (Form A): (4) alarm event relay
sensor cable tamper relay
TCP/IP comms failure relay
external relay module comms failure relay
- Audible Warning Device: (1) **activated on following conditions**
alarm event detection
sensor cable tamper detection
TCP/IP comms failure
External relay module comms failure
- IP Network Connection: (1) RJ45

Environmental Specification

- Operating temperature range: - 40° to + 70° Celsius
- Relative humidity: 90% non-condensing

Physical Specification

- Enclosure: Pressure die-cast aluminium
- Sealing: IP65
- Cable Glands: 3 x M20 (Service Cables) 2 x PG9 (Sensor Cables)
- Cable Gland Sealing: IP66
- Dimensions: 260 w x 160 h x 90 d (mm)
- Weight: 1.8kgs



PROTECTING PERIMETERS WORLDWIDE