DuoTek® Rack

The Ultimate
Fence Detection System

DuoTek® Rack

System Architecture & Advantages

The architecture of the Duo**Tek**® Rack system offers centralised signal processing and eliminates the need to have active electronic modules installed in the field. Signals generated by the Vibra**Tek**® Plus sensor cables are routed to the Duo**Tek**® Rack analyser system using simple and reliable twisted pair cables.

This capability means that there is no requirement to install power or alarm communication cabling along the perimeter as all signal processing and alarm communications are controlled by a Duo**Tek**® Rack system which can be located at one central point on the site where the necessary infrastructure already exists.

Duo**Tek**® Rack´s architecture contrasts with systems offering distributed signal processing where the sensor cable signal analysers are placed at regular intervals along the site perimeter. Such configurations incur significant installation costs by requiring the provision of power and communications cabling necessary to support such systems.

Duo**Tek**® Rack´s powerful and flexible

architecture is made possible by the unique features of the Vibra**Tek**® Plus sensor cable which allows up to 2500 metres of non-sensitive cable to be interposed between a zone of sensor cable and it's signal analyser channel card.

A further and significant advantage of Duo**Tek**® Rack´s architecture is to offer greatly enhanced reliability by eliminating exposure of the system electronics to environmental stresses such as extremes of temperature and humidity.

The architecture is also inherently resilient to the destructive effects of lightning strikes in the vicinity of the perimeter fence as the interconnecting cables used to route the Vibra**Tek**® Plus sensor cable signals to the Duo**Tek**® Rack analyser system effectively attenuate such transients to levels that are easily suppressed by the protective devices incorporated in every signal analyser channel.

All externally located components used in a Duo**Tek**® Rack system are entirely passive and comprise such components as junction boxes, cables, cable ties, and termination boxes. As such, these components are unaffected by exposure to almost every extreme of environmental conditions.

A typical schematic outline of a Duo**Tek**® Rack system is depicted in Figure 1.

Features

The Duo**Tek**® Rack signal analyser system employs advanced digital signal processing to ensure maximum probability of detection allied with a negligible false alarm rate.

Each detection zone provides three channels of signal processing which address the characteristics of the most common types of attacks on perimeter fence structures.

These modes of attack may be characterised as follows:

Impact Attacks (large amplitude signals)
Cut-through attacks using tools such as bolt cutters, wire cutters, axes, or hammers and chisels.

Continuous Attacks (low frequency signals)
Unaided or rope aided climb-over attacks.

Continuous Attacks (high frequency signals)
Power tool attacks using grinders, saws, or drills.

Each of these channels of signal processing provide independent detection parameter adjustments to ensure optimum performance by eliminating compromise settings commonly found on less advanced systems with limited processing power.

Figure 1.
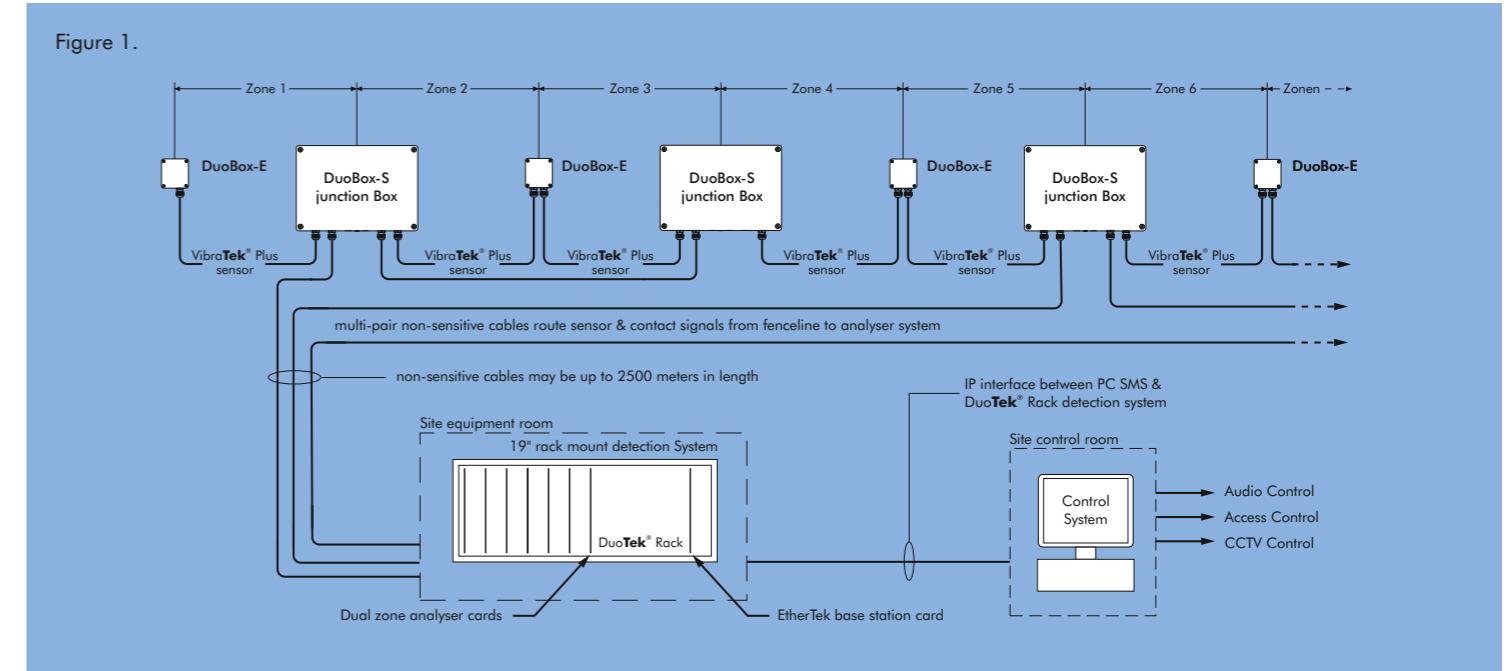
Digital & Analogue Audio Monitoring

The Duo**Tek**® Rack fence protection system from Detection Technologies Ltd. represents a major advance in perimeter intrusion detection technology by combining the most technologically advanced acoustic sensor cable available today with the latest digital signal processing techniques designed to maximise intruder detection probability while reducing unwanted alarms resulting from non-intruder related activity to virtually zero.

Operating in conjunction with Detection Technologies' revolutionary Vibra**Tek**® Plus sensor cable, the Duo**Tek**® Rack fence protection system provides the end user with a cost effective solution that ensures reliable detection of intrusion activity combined with an almost negligible false alarm rate.

The Duo**Tek**® Rack detection system incorporates a digital audio signature storage capability for every sensor cable zone.

This powerful feature may be used to assist in the verification of alarm activations by allowing the recall and replay of the sensor audio signal before and after each alarm event. An analogue audio channel is also provided for every sensor cable zone.

SMS Interface

The Duo**Tek**® Rack system is used in conjunction with a Security Management System (SMS) which oversees the operation of the Duo**Tek**® Rack detection system.

All system adjustments, operating mode configuration, and alarm monitoring is handled by the SMS at the central location thereby eliminating any requirement for field based adjustments. This advantage is of huge significance, both in time saving and cost when larger perimeters are considered.

A fully configured Duo**Tek**® Rack system comprises 1 master rack assembly plus 3 slave rack assemblies. This maximum config-uration provides 64 zones of sensor

cable detection and 128 zones of contact monitoring enabling it to meet the intruder detection requirements of virtually any secure site. Larger systems are simply realised by the addition of extra master rack assemblies.

The master rack assembly incorporates Detection Technologies' Ether**Tek**® IP interface to the SMS and as such, existing network infrastructures may be utilised to link such systems and reduce installation costs.

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THE ULTIMATE FENCE DETECTION SYSTEM

System Specification

System Enclosure:	19" industrial 4U rack cabinet c/w translucent front panel
Overall Dimensions:	480mm (width) x 380mm (depth) x 200mm (height)
Weight:	8 kgs (master rack), 7 kgs (slave rack)

Master Rack Assembly (1 per system)

Max. No. Of Sensor Zones:	16
Max. No. Of Contact Inputs:	32

Slave Rack Assembly (Maximum 3 per system)

Max. No. Of Sensor Zones:	48
Max. No. Of Contact Inputs:	96

System Status Inducators (per zone)

Green & Red LED´s:	Alarm status, tamper status, sensor cable fault, Impact detection channel activity, continuous attack detection channel activity, contact 1 input status, contact 2 input status

External Interfaces

Hardware:	RJ45 Connector (1)
Functionality:	IP interface to Security Management System
Relay Signalling:	2 dry relay contact outputs per sensor zone
Analogue Audio:	1 analogue audio channel per sensor zone
Digital Audio:	Digital audio channel selecting sensor zones

Detection Zone Connections

Sensor cable, contact monitoring inputs, zone relay outputs, and analogue audio outputs all connected by plug and socket connectors on each dual zone analyser card.

Enivronmental Specification

Operating Temperature Range:	-10° Celsius - + 50° Celsius
Relative Humidity Range:	70 % non condensing

Power Requirements

AC Supply Voltage:	85 – 264 V
AC Supply Frequency:	47 – 63 Hz
Power Consumption:	60 VA

DETECTION TECHNOLOGIES

PROTECTING PERIMETERS WORLDWIDE