Horizon-DAS - Distributed Acoustic Sensor

The Horizon-DAS series of distributed vibration sensors is an extremely versatile monitoring system, with the capability to monitor both buried installations (pipelines, borders..) and above ground fence and wall mounted systems. Each unit can coverage for up to 100km and has inbuilt intelligent classification engines for accurate location of intrusion events with minimal nuisance events and false alarms. The Horizon DAS range is an ideal solution both as a Perimeter Intrusion Detection System (PIDS) and a Third Party Interference (TPI) system

Features
- Long distance monitoring – up to 100km per unit.
- Ability to monitor buried cable and fence/wall mounted
- Location of intrusion event to within 5m over long distances
- Intelligent classification engine with motion recognition
- Based on single fiber optic sensing cable. No individual sensors, no metal or moving parts
- Robust and reliable instrumentation with no moving parts (fan free) and utilising high reliability telecom components

Benefits
- Simple to stall and low overall cost of ownership
- Ability to react to precise location of event for rapid action and effective troubleshooting.
- High detection rate of all intrusion events with low nuisance and false alarm rates
- Easy to install and low cost of ownership with low ongoing maintenance costs
- High percentage system uptime (mean time between failures > 19 years) giving complete coverage at all times
**User Interface**

The Horizon system utilises in-built software with advanced data analytics and intelligent classification engine. With the GIS mapping interface, alarming functionality and waterfall data analytics this can be used as a standalone solution or with Bandweaver’s power Maxview SCADA software.

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**Horizon Model**

<table>
<thead>
<tr>
<th></th>
<th>DAS 20</th>
<th>DAS 40</th>
<th>DASF 50</th>
<th>DAS 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smart Zones</td>
<td>1000+ zone, fully configurable, independent of each other</td>
<td></td>
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<tr>
<td>Intelligent Classification Engines</td>
<td>Fence related intrusion alerts. Environmental noise reduction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range (per unit)</td>
<td>20km</td>
<td>40km</td>
<td>50km</td>
<td>100km</td>
</tr>
<tr>
<td>Positional Accuracy</td>
<td>±5m</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of channels</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Optical fiber type</td>
<td>G.652/ G.654 single mode optical fiber</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency range</td>
<td>1Hz ~ 2.5kHz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response Time</td>
<td>2 to 10 seconds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage</td>
<td>100 ~ 240V (AC)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power consumption</td>
<td>75W</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data Export</td>
<td>TCP/IP, RS232/RS485, Modbus, DCS (Honeywell, Siemens, ABB......)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**System Architecture**

The Horizon system has an extremely flexible system architecture enabling it to integrate either with Bandweaver’s Maxview SCADA software or with any 3rd party control systems.

With the loose coupling architecture of Maxview it can integrate multiple systems across multiple sites with one coherent, customisable, easy to install user friendly interface.

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**Command and control centre with Maxview SCADA software to enable integration with 3rd party sensors and existing OEM control systems**

- Mechanical digging
- Personnel digging
- Fence mounted and buried perimeter intrusion detection (PIDS)
- Light vehicle
- Heavy vehicle

**Up to 50km sensing cable length**

Command and control centre with Maxview SCADA software to enable integration with 3rd party sensors and existing OEM control systems

Horizon Interrogation Unit

Horizon IPC unit

SMS / Smartphone interface

PLC/SCADA

SCADA Interface

Video surveillance and alarm system

Supporting Ethernet based network technology enables Horizon scalability

www.bandweaver.com | info@bandweaver.com
Robust Anti-Cut Loop Configuration

In 2 channel loop mode configuration the Horizon system can withstand accidental or malicious damage to the cable. The system will can continue with full functionality even with a cut to the cable.

Cable Specifications

The Horizon system is optimised to work with the Bandweaver Fenceline cable. Fenceline is based on a loose tube cable design optimised to provide signal amplification and additional protection to the sensing cable. As standard comes with 4 fibers but can accommodate additional fibers on request.

<table>
<thead>
<tr>
<th>Cable OD</th>
<th>Fiber Type</th>
<th>Number of cores</th>
<th>Pressure rating</th>
<th>Strength rating</th>
<th>Bend radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.2mm</td>
<td>G.652</td>
<td>4+</td>
<td>Short term 1000N Long term 3000N</td>
<td>Short term 600N Long term 1500N</td>
<td>Static 10 x Dynamic 20x</td>
</tr>
</tbody>
</table>