Horizon-DAS - Distributed Acoustic Sensor

The Horizon-DAS series of distributed vibration sensors is an extremely versatile monitoring system, with the capability to monitor a wide range of buried installations (perimeters, cables, pipelines, borders..). There are a range of units providing coverage from 5 to 100km and all with inbuilt intelligent classification engines for accurate location of intrusion events with minimal nuisance events and false alarms.

Features
- Long distance monitoring – up to 100km per unit.
- Ability to monitor buried cable
- 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 giving complete coverage at all times
### Horizon Model

<table>
<thead>
<tr>
<th></th>
<th>DAS 5</th>
<th>DAS 10</th>
<th>DAS 20</th>
<th>DAS 40</th>
<th>DAS 50</th>
<th>DAS 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smart Zones</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Event Classification</td>
<td>Personnel, Manual Digging, Vehicle, Mechanical Digging</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range (per unit)*</td>
<td>5km</td>
<td>10km</td>
<td>20km</td>
<td>40km</td>
<td>50km</td>
<td>100km</td>
</tr>
<tr>
<td>Positional Accuracy</td>
<td></td>
<td></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>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Frequency range</td>
<td>1Hz-8kHz</td>
<td>1Hz-8kHz</td>
<td>1Hz-1.6kHz</td>
<td>1Hz-1.6kHz</td>
<td>1Hz-800Hz</td>
<td>1Hz-800Hz</td>
</tr>
<tr>
<td>Optical fiber type</td>
<td>G.652/ G.654 single mode optical fiber</td>
<td></td>
<td></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>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage</td>
<td>100 ~ 240V (AC)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power consumption</td>
<td>25W</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data Export</td>
<td>TCP/IP to IPC. Multiple interfaces via IPC/MaxView</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-10 to 55°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laser Safety Class</td>
<td>Class 1M (EN60825-1) 2000 / Output power &lt; 10mW</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Range is dependent on the optical quality of the sensing cable route. This can be confirmed upon reviewing an OTDR trace. Maximum possible range in ideal conditions is 130km for a dual channel system (65km per channel)*
System Architecture

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

- 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
- Video surveillance and alarm system
- Supporting Ethernet based network technology enables Horizon scalability

---

www.bandweaver.com | info@bandweaver.com
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.

Certifications, Standards and Approvals

Bandweaver undertakes testing according to multiple international and industry specific standards. Below is a sample of some of the approvals undertaken within this industry segment.

- CE 2014/30/EU
- 2014/35/EU
- IEC 60185-1 2007
- EN 61010-1 : 2010
- FCC Part 15B EMC
- FDA 21 CFR 1002.11, 1002.13, 1010-105, 807, 812, 814

Please ask your local Bandweaver representative for the approvals of your specific system requirement.