Helios® DAS
Distributed Acoustic Sensor
About Fotech

Our world leading DAS technology provides unrivalled sensing solutions to help our customers solve their business-critical challenges. Working closely with customers we continue to exceed expectations, optimise traditional processes and create new opportunities in a range of industries.

Established in 2008 to develop DAS solutions for the energy, security and transport markets, Fotech combines talent from across the globe with leading edge industrial photonics and technology expertise.
Harness the power of fibre optics
Monitor your assets with Helios® DAS

World leading DAS technology from Fotech Solutions
Helios® DAS converts a single optical fibre into the equivalent of tens of thousands of highly-sensitive vibrational sensors.

By connecting a standard single-mode telecommunication cable and pulsing light along the cable you can monitor and detect events caused by vibrational disturbances along an optical fibre up to 50km* long and up to 100km* with the Helios X3 dual-channel technology.

Whether the optical fibre cable is deployed along the asset or in-well, Helios DAS provides continuous and dynamic real-time information of events to help you improve visibility of your assets and the efficiency of your operations.

Our technology continues to be deployed across the globe and in a variety of industries. Used in a growing number of applications Helios DAS can be used independently or supplemented by our auxiliary modules to provide enhanced capabilities from event alarm management and advanced processing to networked solutions.

* Sensing range is dependent on fibre quality, optical loss of fibre, local environment, and subject to detection stream requirements.
How Helios®DAS works

The Helios DAS is an advanced variant of an Optical Time Domain Reflectometer (OTDR). Every second it sends thousands of pulses of light along an optical fibre cable and monitors the finely structured Rayleigh backscatter pattern in the reflected light. This reflected light pattern changes when acoustic or vibrational energy creates a strain on the optical fibre.

By using advanced algorithms and processing techniques it analyses these changes to identify and categorise the disturbance event, whether foot-falls across a border or fluid penetration in a hydraulic fracture operation. By detecting disturbance events simultaneously along the entire fibre in real-time Helios DAS is able to build a comprehensive image of your asset, detailing the type of disturbance event, its location and its evolution through time.
Key Benefits

• Helios®DAS is simple to install during initial site development or retrospectively

• Low deployment cost, it operates using a single dark fibre in a standard telecommunication grade optical cable

• High resilience and availability with low “through life” maintenance and service costs

• Operation requires no power along the fibre sensor

• Fibre sensor immune to EM / RF interference

• User friendly system configuration and alarm handling software that enables a high degree of tuning and simple integration with client management systems

• Remote management by network connection
Delivering unrivalled visibility to enhance your operations

Supports continuous monitoring along the full fibre length to:

- Identify integrity events earlier for more effective management
- Increase operational efficiency and enable cost savings
- Provide detailed analysis to facilitate a more informed decision process

Multi-Industry Application

### Upstream Oil & Gas
- Fracture Monitoring
- Production & Injection
- Sand Detection
- Well Integrity
- Leak Detection

### Pipeline Integrity
- Intrusion Detection
- Integrity Monitoring
- Leak Detection
- Hot Tapping
- PIG Tracking

### Security
- Perimeter Security
- Border Control
- Cable Security
- Fence Security
- Asset Tampering

### Infrastructure
- Conveyor Belts
- Traffic Monitoring
- Rail Infrastructure
- Cable Integrity
- Utility Maintenance

Helios® DAS Variants

Helios DAS is available in a range of models that are designed to meet your application whether monitoring over different ranges, or different configurations to provide best-fit solution for your asset.

<table>
<thead>
<tr>
<th>Model</th>
<th>Channels</th>
<th>Range</th>
<th>Size without front brackets and rear guards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helios L3</td>
<td>1</td>
<td>50 km*</td>
<td>178 mm x 502 mm x 430 mm (4U)</td>
</tr>
<tr>
<td>Helios X3</td>
<td>2</td>
<td>100 km (2 x 50 km)*</td>
<td>222 mm x 572 mm x 430 mm (5U)</td>
</tr>
<tr>
<td>Helios S3</td>
<td>1</td>
<td>20 km</td>
<td>178 mm x 502 mm x 430 mm (4U)</td>
</tr>
<tr>
<td>Helios D3</td>
<td>2</td>
<td>40 km (2 x 20 km)</td>
<td>222 mm x 572 mm x 430 mm (5U)</td>
</tr>
<tr>
<td>Helios L3M</td>
<td>1 channel which switches between 2 or 4 fibres</td>
<td>100 km (2 x 50 km)* or 200 km (4 x 50 km)*</td>
<td>178 mm x 502 mm x 430 mm (4U)</td>
</tr>
</tbody>
</table>

*With a one-way optical loss of up to 12.5 dB. Range is dependent upon quality of fibre, local environment, and the specific detection streams required.

Helios X3 and Helios D3 are dual channel variants which are capable of permanently monitoring two fibres.

Helios L3M incorporates a two-channel, or four-channel multiplexer switch, which provide alternating monitoring of two, three or four fibres, for a few minutes each, one at a time.
Contact us to discuss your requirements:

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