SILIXA

sense the difference

Delivering the world's highest quality

data driven solutions

from distributed fibre optic monitoring

Why Silixa?

We are unique in being the only originator and manufacturer of both DTS (ULTIMA™, XT-DTS™) and DAS (iDAS™) distributed sensing technology

Our Carina® Sensing System gives breakthrough performance with a 100 times improvement in signal to noise ratio

In our chosen markets we have embedded deep sector knowledge within our multidisciplinary teams

We continue to redefine the limits of the possible by making a significant investment in Research & Development

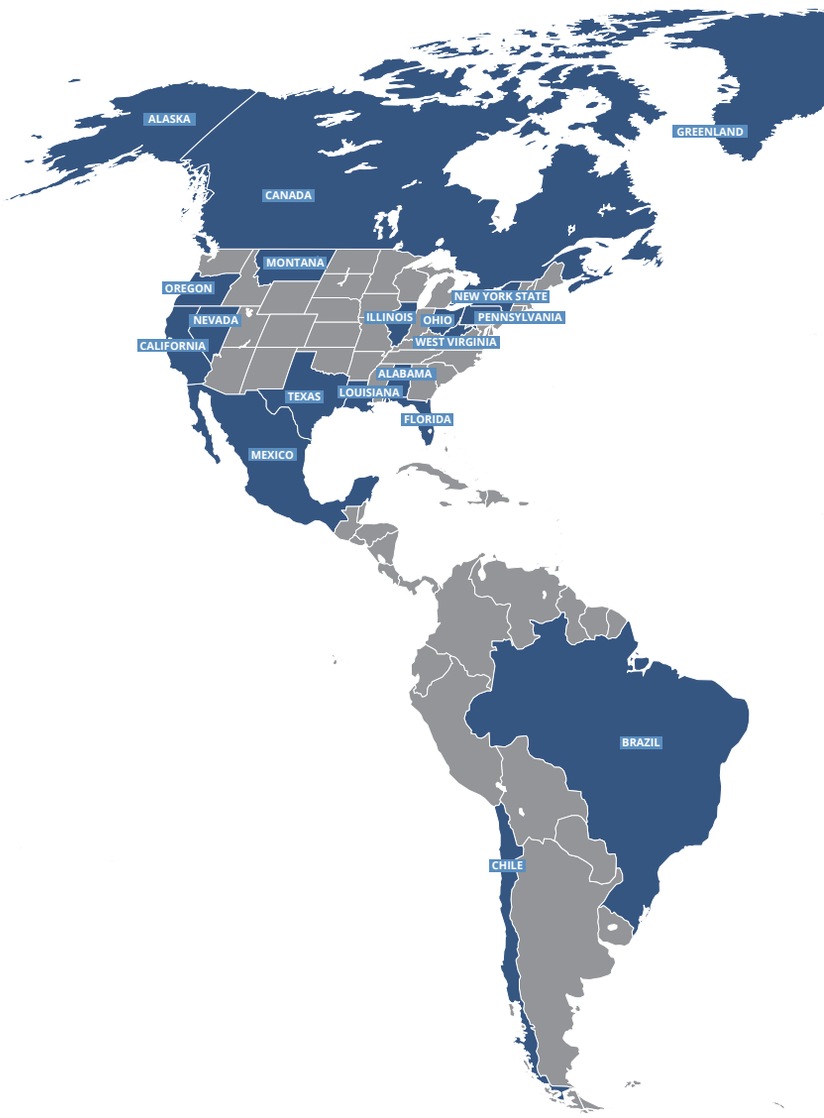
We have an outstanding track record of success and are ISO 9001 and Achilles certified

Who we are

Silixa Ltd, based in Elstree, UK and Houston, USA, was established in 2007 and is supported by three major investors: Lime Rock Partners, Chevron Technology Ventures and Statoil Technology Invest.

Over the past decade, we have grown to become a specialist service company operating globally in the oil & gas, environmental & infrastructure and mining sectors.

Our in-depth technical expertise is augmented by our intimate knowledge of the energy sector, enabling our customers to rely on our solutions.



What we do

Silixa improves the performance, reduces operational costs and extends the lifespan of any asset by delivering data driven solutions from distributed fibre optic monitoring arrays. Our systems have the highest levels of accuracy in the industry and are installed on either new or existing fibre cables.

Our solutions utilise the power of the world's highest performing distributed acoustic sensing (iDAS™ and Carina® Sensing System) and temperature sensing (ULTIMA™ DTS, XT-DTS™) technologies.

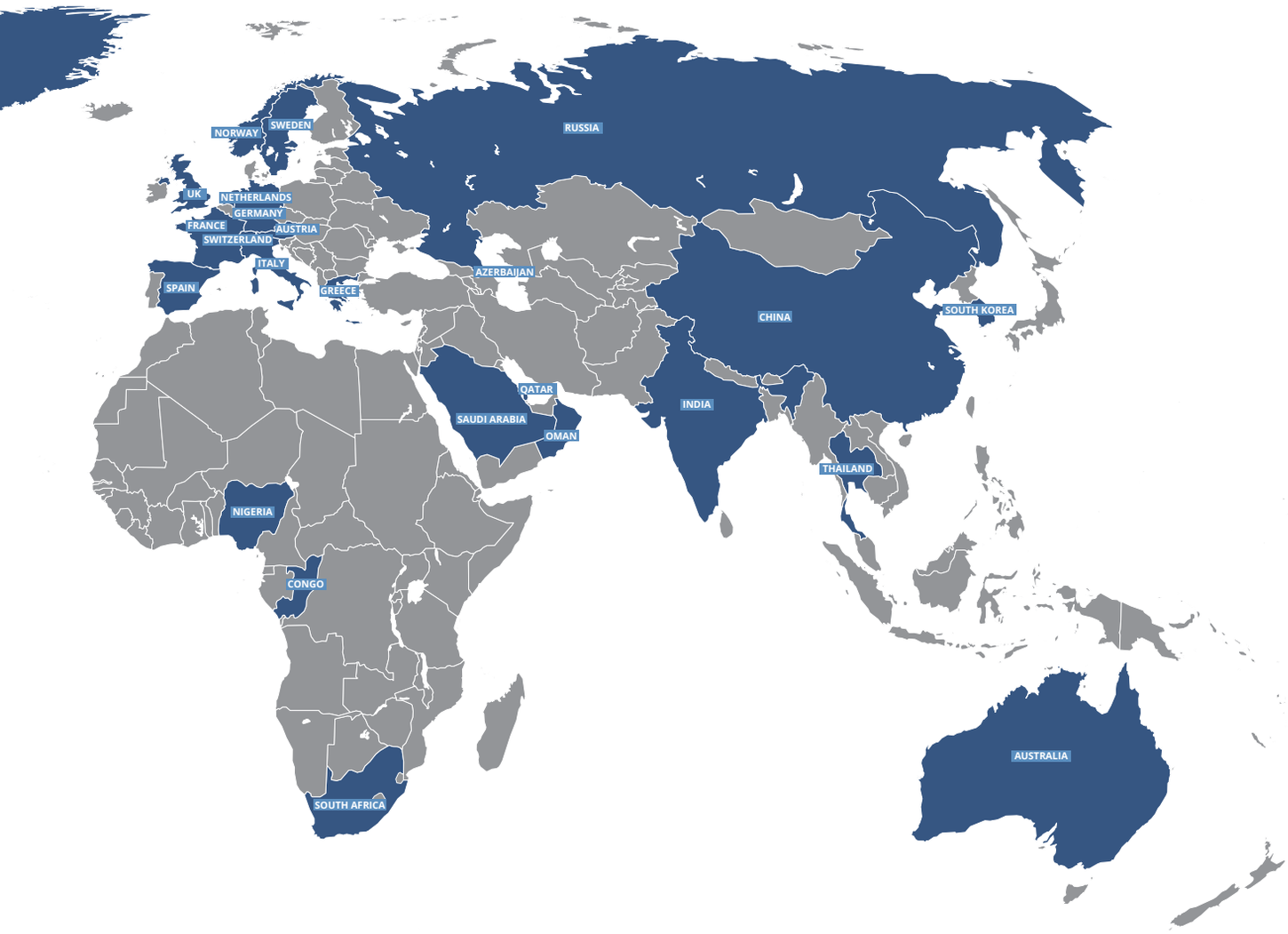
Our mission

To enable our customers to redefine the limits of the possible within their processes by transforming how distributed sensing is used.

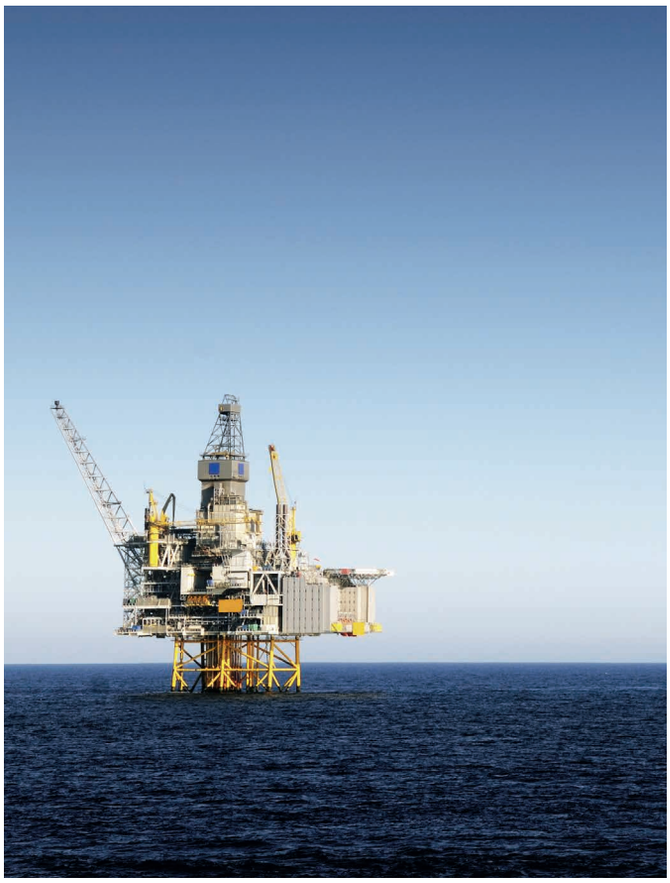
Where we operate

With past and current operations across six continents, Silixa supports its clients in a broad range of industries and market sectors.

We have completed hundreds of fibre optic distributed sensing installations worldwide.



The sectors we serve



Oil & Gas Downhole

Our fibre optic sensing footprint spans across the globe, in a diverse range of well types. Our trained personnel have extensive experience in providing the complete sensing solution, from optical fibre handling, downhole cable deployment and system installation, to data acquisition and quality control.

The range of data applications possible with distributed sensing means that the same optical fibre installation can provide the user with actionable information throughout the life of the well.

Recent projects include operations in Canada, USA, Norway, Azerbaijan and Saudi Arabia.

Applications

Permanent Reservoir & Well Surveillance

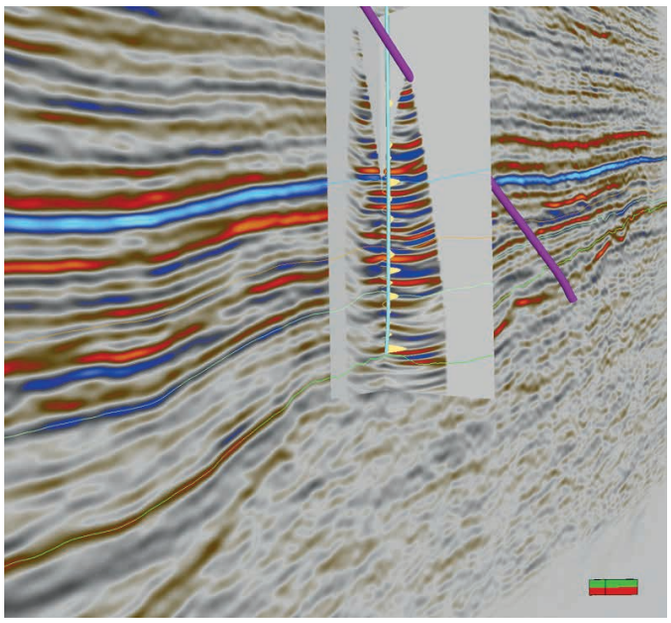
- Carina Seismic
- Seismic
- Production Profiling

Intervention Services

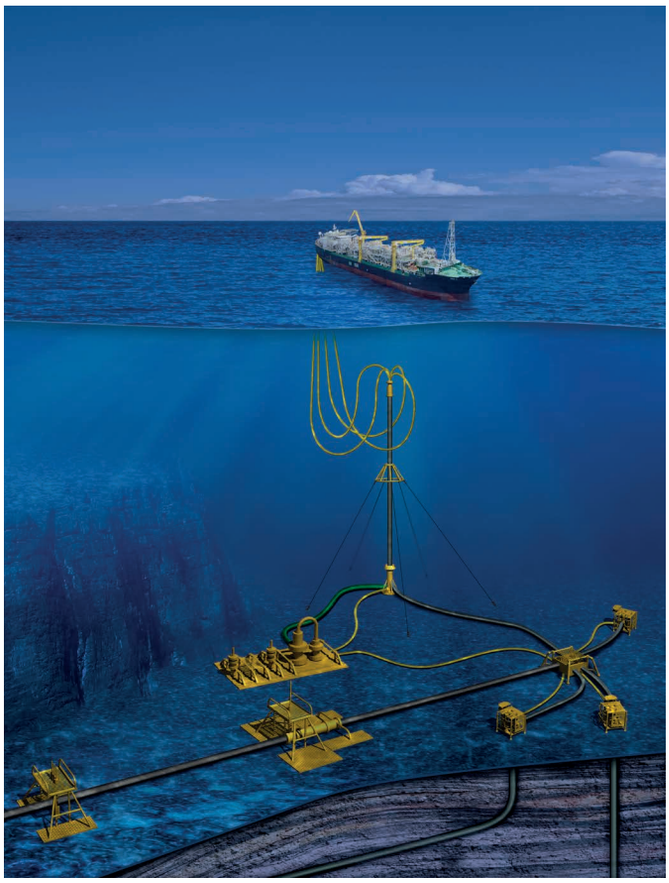
- Fluid Inflow Detection
- Water/EOR Injection & Stimulation Monitoring
- Well Integrity

Frac Services

- Fracture Monitoring
- Crosswell Monitoring
- Flowback Monitoring



High-resolution migrated 3D seismic image produced from data recorded with iDAS during an offshore survey.
(Data courtesy of Nexen Petroleum UK Ltd.)



Oil & Gas SURF

(Subsea Umbilicals, Risers and Flowlines)

The application of distributed fibre optic sensing to flowlines and umbilicals offers clear operational and financial benefits. Our sensing systems are particularly well suited for event and leak detection in subsea environments, as they overcome many of the challenges associated with gathering data in such harsh and remote conditions.

A sensing system utilising a single fibre optic cable provides thousands of measurement points, capturing data from each point simultaneously. The system requires no subsea power, it is suitable for long-range operations and can be easily integrated with an existing DCS.

A permanently installed fibre optic system allows continuous reservoir, well and infrastructure monitoring. The real-time information empowers operators to make better decisions faster, resulting in cost-efficient operations with minimised risks.

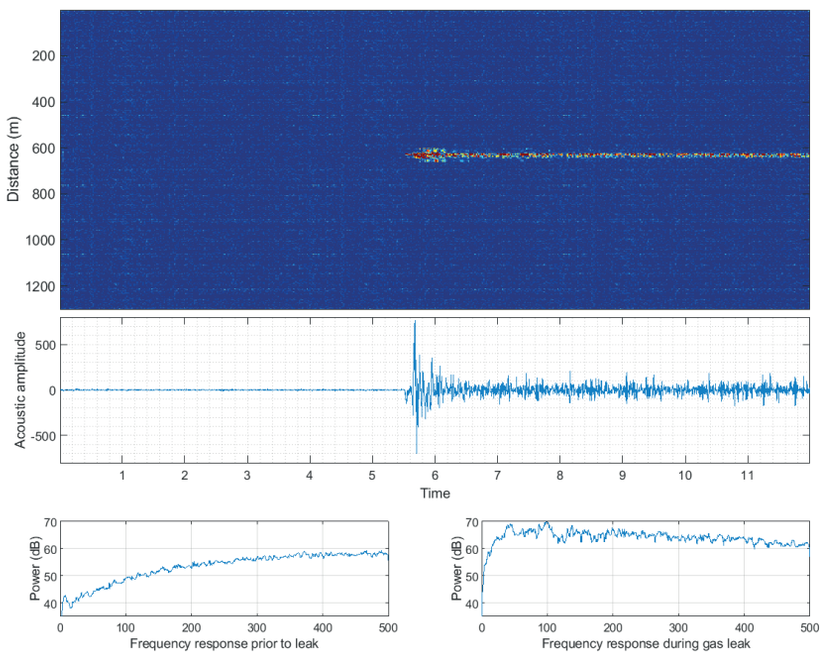
Applications

Pipeline and cable integrity

- Subsea Event Detection
- Subsea Leak Detection
- Subsea Power Monitoring

Flow assurance

- Thermal Profiling
- Slug Detection



Acoustic leak detection with iDAS

The sectors we serve

Mining

Alongside our established performance in the oil & gas sector, we have recently introduced our distributed sensing-based solutions to the mining sector.

Our unique non-intrusive process metering technology enables flow distribution monitoring throughout an entire plant, mine, or oilfield environment simply by using a single length of fibre optic cable installed on process pipes.

Monitoring seepage through tailings dams and surface pits is vital to mine management. Our distributed temperature sensing-based seepage detection system represents a break-through in dam safety, enabling an unprecedented level of sensitivity and spatial coverage.

Our microseismic monitoring capabilities are well-suited to continuous monitoring of seismicity throughout underground operations and surface pits alike.

Applications

- Process metering
- Seismic and VSP
- Seismicity
- Tailings Dam Seepage Monitoring

Environmental & Infrastructure

Distributed sensing has been adopted for quantifying natural processes and monitoring infrastructure which have been put in place to protect the environment. Our solutions can gather data from locations where conventional point sensing is not applicable or cost-effective and deliver detailed information with the finest spatial and temporal resolution even over long lengths and large structures.

While distributed temperature sensing has been established for several years in environmental applications, iDAS is providing new opportunities to gain valuable insight into critical areas.

Applications

Geotechnical

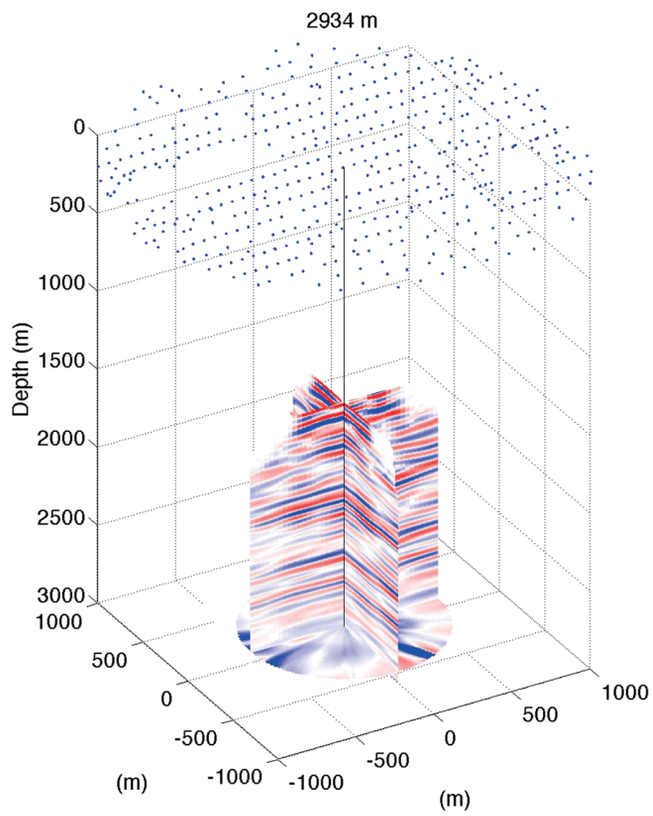
- Seismicity
- Geothermal
- Groundwater

CO2 Storage

- VSP and surface seismic
- Plume Monitoring
- Cavern Integrity

Asset Integrity

- Integrity Monitoirng
- Power Cable Monitoring
- Dam Monitoring
- Process Monitoring



High-resolution 3D VSP image produced from iDAS™ seismic data at a land-based seismic survey with dynamite source.

Our services

Installation Services

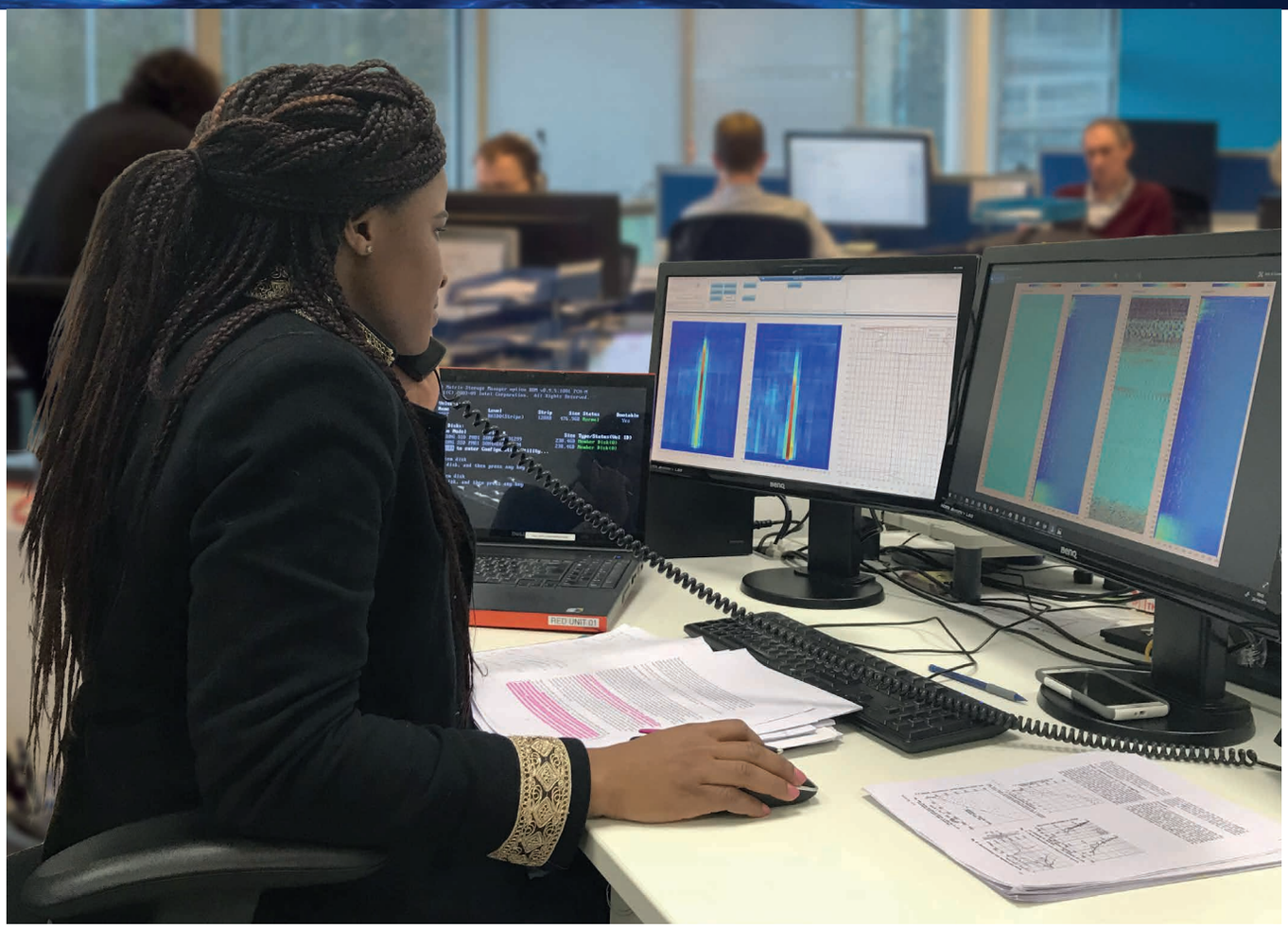
Assured competency and robust procedures are key to the success of any system installation. Our operations and technical team is an experienced group of fibre optics installation experts, with proven track record in the distributed sensing domains of the oil & gas, environmental & infrastructure and mining sectors.

We provide installation services from the design stage through to the final installation and commissioning of fibre optic sensing cables and acquisition systems, along with all associated hardware and documentation.

Cable Design Engineering

We possess a wealth of knowledge in the design and construction of fibre optic cables. The cable, with integral fibres, creates our sensor and is therefore a critical part of the overall monitoring system. Using knowledge based on the accumulated experience of our research and operations engineers we understand how distributed sensing cables should be built and installed. Working with the world's leading speciality fibre optic and cable manufacturers we can engineer cables suitable for specific applications in the harshest environments.

By understanding your requirements, we will supply, integrate and install fit for purpose engineered cables and assemblies. Using a global supply chain we can ensure these cables can be efficiently delivered worldwide, without unnecessary delay.



Data Analysis

High bandwidth distributed measurements tend to result in large volumes of data, the processing of which can lead to significant information management challenges. We have signal processing and data handling protocols in place to manage this challenge effectively. As such, we offer our customers data management solutions to meet their distributed sensing demands.

Additionally, we have in-house domain experts to provide in-depth data interpretation on distributed temperature and distributed acoustic data sets for a wide range of applications.

Our data analysts and signal processing engineers develop algorithms and processing chains to fully exploit the advanced data derived from our distributed sensing systems.

Support

To ensure smooth data collection and monitoring operations, we provide hands-on support to all our clients around the world.

Full training is provided to ensure our clients can fully operate, collect and interpret data and troubleshoot their sensing systems whenever required. Our engineers are available to provide guidance to maximise the systems' performance at all times. We also provide dedicated customer support on our website, where issues can be logged.

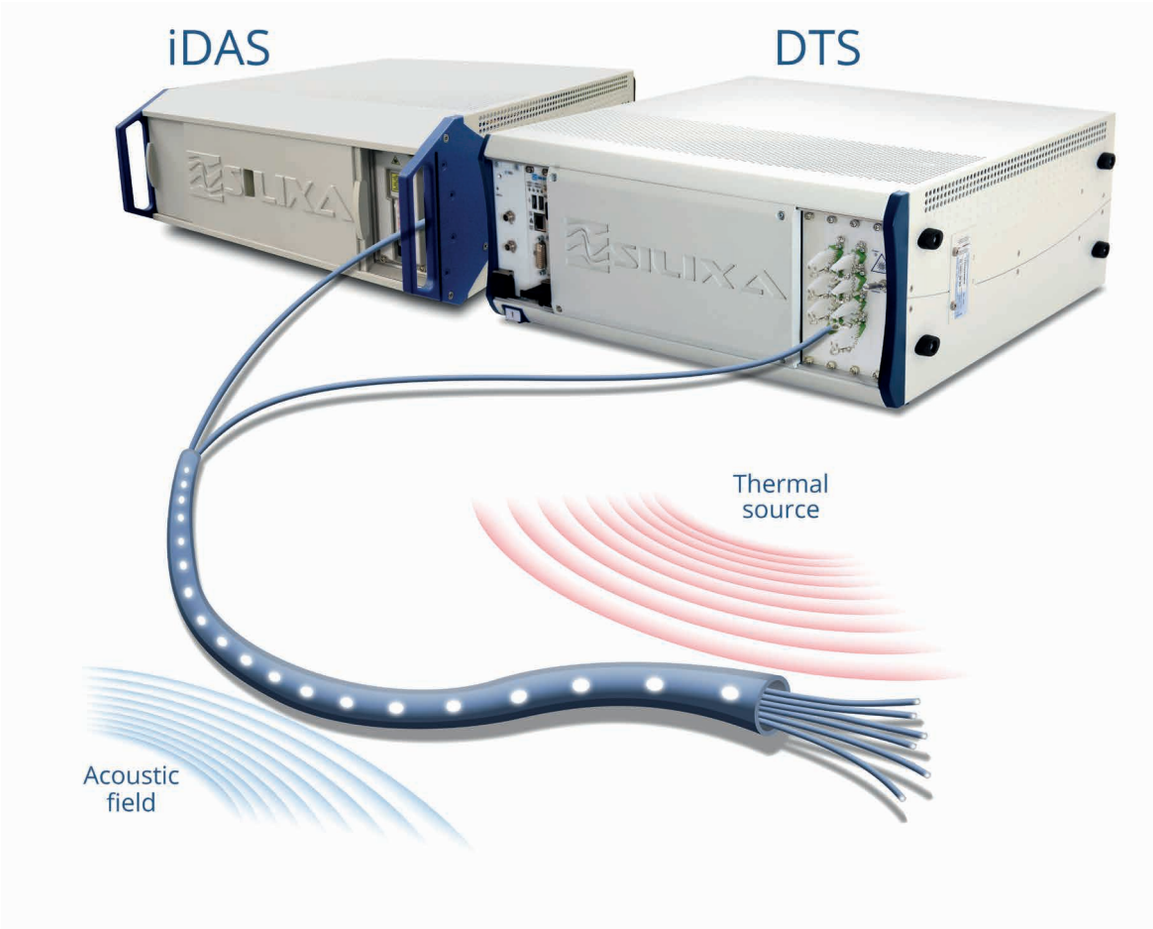
Why distributed sensing

Distributed fibre optic sensing enables continuous, real-time measurements along the entire length of a fibre optic cable. Unlike traditional methods that require discrete sensors measuring at pre-determined points, distributed sensing does not rely upon manufactured sensors but utilises the optical fibre as the sensing element, removing the need for additional transducers in the optical path.

The interrogator operates according to a radar-style process: it sends a series of pulses into the fibre and records the return of the naturally occurring scattered signal against time. In doing so, the distributed sensor simultaneously measures thousands of points along the fibre length.

As the fibre is the sensor, it is a cost-effective method that can be easily deployed even in the harshest and most remote environments.

Distributed sensing systems have been developed for the oil and gas industry to assist reservoir engineers in optimising the well lifetime. Nowadays, alongside oil well monitoring applications, they find a wide variety of uses in diverse industries as tools for integrity and process monitoring, leak and seepage detection as well as flow control.



The enabling technology

Our best-in-class monitoring solutions are powered by our pioneering technologies developed and manufactured in the United Kingdom.

iDAS™ intelligent Distributed Acoustic Sensor

iDAS is a true acoustic sensor which reproduces sound faithfully in amplitude, frequency and phase.

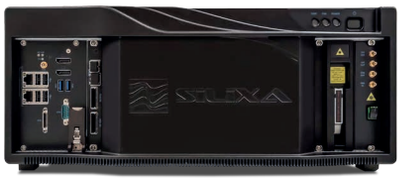
A key differentiating feature of iDAS is the ability to perform measurements equally well on both singlemode (SM) fibre and multimode (MM) fibre. This allows us to retro-fit an iDAS to an existing multimode fibre installation, or to utilise DTS multimode cables to perform the full scope of iDAS services.

Phase-coherent acoustic measurements with the finest spatial resolution and sampling on the market, on both SM and MM fibres.

Carina® Sensing System

Engineered Distributed Acoustic Sensor

Born out of our most complex and ambitious development project since the release of the original iDAS in 2009, Carina comprises an advanced optoelectronics interrogator and the new family of engineered Constellation™ fibres; gaining two orders of magnitude more sensitivity (100x or 20dB improvement) over that achieved with standard fibres.



Achieving the massive coverage of distributed sensors without having to compromise on sensitivity.

ULTIMA™ DTS

Distributed Temperature Sensor

The ULTIMA DTS range is the world's highest performing family of Distributed Temperature Sensors, offering the finest temperature and spatial resolution, from 0.01˚C and 35cm.

Unparalleled performance in terms of resolution and acquisition time.

XT-DTS™

Ruggedised Distributed Temperature Sensor

Our Ruggedised Distributed Temperature Sensor, XT-DTS, is designed for remote and hostile environments and is the highest performing ruggedised distributed temperature sensor on the market.

Highest performing ruggedised DTS on the market

We would love to hear from you.
Contact us with your requirements.

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