

DISTRIBUTED ACOUSTIC SENSING SYSTEM

Pipeline and Buried Cable Protection



BENEFITS

AGIL™ Distributed Acoustic Sensing System (DASS) detects and provides early warning for digging, excavation or tampering activities. The system reads real-time acoustic signals along the entire length of the pipeline or cable, without any blind spots and interferences. Every point of the pipeline is continuously monitored so as to locate any or multiple simultaneous third-party intrusion activities, and classify the nature of events accurately. An alarm is triggered if the event is a threat to the pipeline, so that further damages can be prevented.

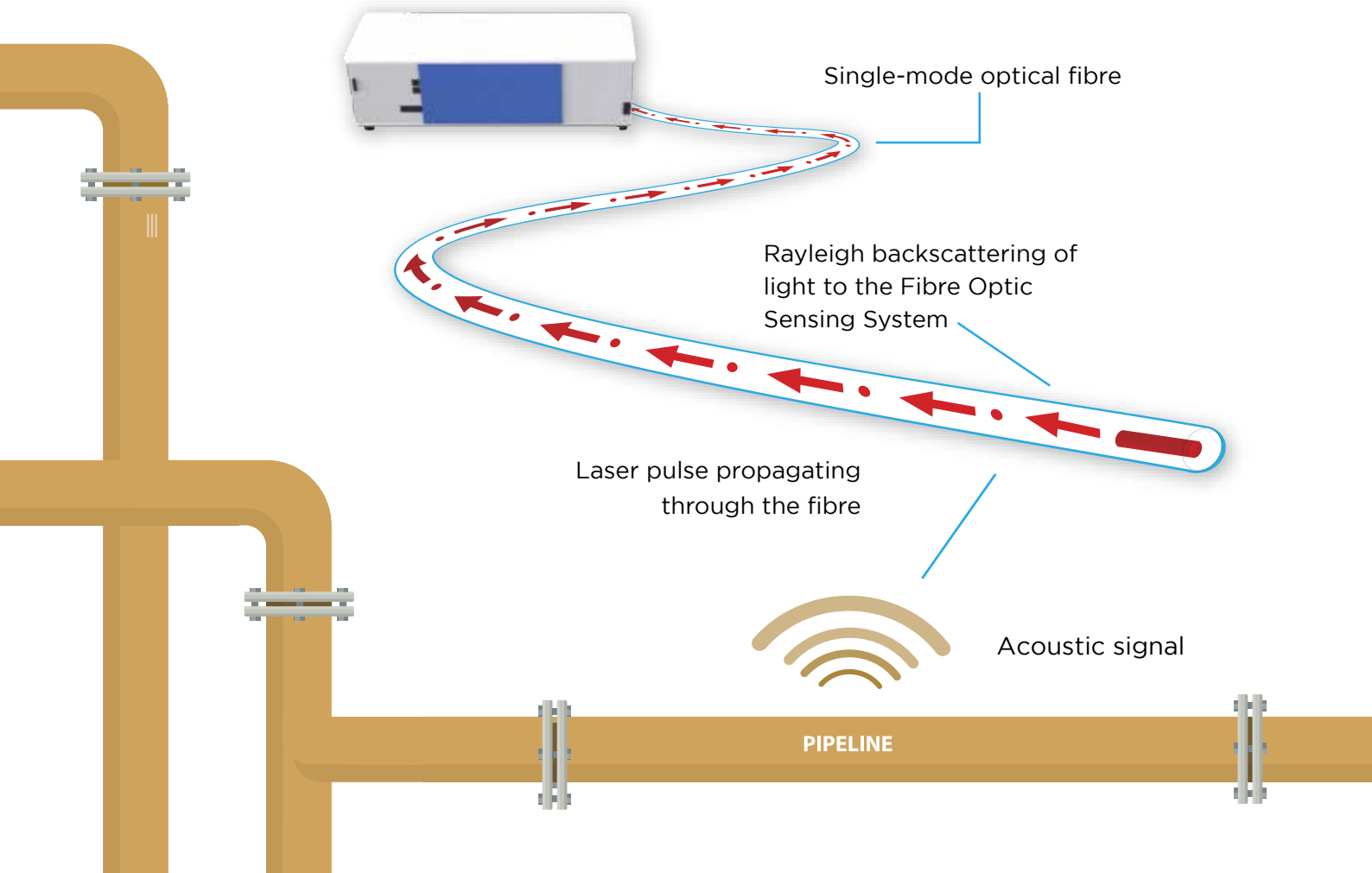
KEY FEATURES

- No blind zone along entire length of the pipeline
- Continuous interference-free monitoring
- Configurable classification of intrusion events
- Early warning of threat to the pipeline
- No maintenance required
- Easy deployment

APPLICATION

Detects and locates threats including:

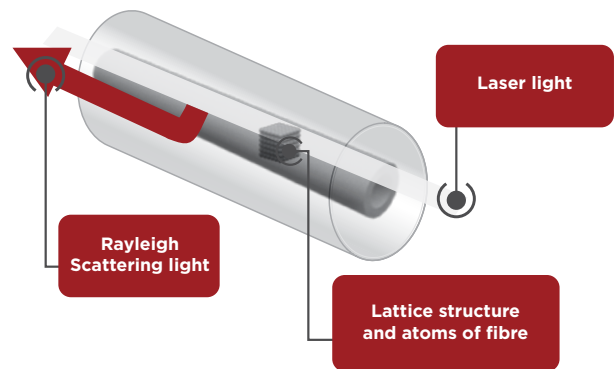
- Pipeline theft
- Mechanised digging
- Third-party intrusion (TPI)





HOW IT WORKS

DASS buried solution uses Phase-Sensitive Optical Time Domain Reflectometer (PS-OTDR) technology to achieve distributed acoustic sensing along an optical fibre cable up to 25 km. When a laser pulse propagates through the fibre optic cable, the Rayleigh backscattering of light occurs and is analysed by the DASS Sensing Unit and backend signal processing algorithms. DASS identifies third-party intrusion events by detecting abrupt changes in frequency, amplitude and phase received from the optical fibre.



In the event of excavation, the system is able to show the exact intrusion location by calculating the distance and time of which the light has travelled. With intelligent signal processing, the system eliminates false alarms and trigger intrusion alerts reliably to the user. The alerts allow advanced situational awareness and increase response time for the operators to react, thus preventing further damages and losses.



PERFORMANCE SPECIFICATIONS

Monitoring Distance	25 km
Accuracy	± 10 m
Spatial Resolution	20 m

TECHNICAL SPECIFICATIONS

Interrogator System	
Technology	Phase-sensitive OTDR
Input Voltage	100 VAC to 240 VAC
Communication Interface	RJ45
Operating Temperature	15°C to 25°C
Operating Humidity	< 90%, non-condensing

Fibre Sensing Cable		
Fibre Type	Single-mode four-core fibre	
Outer Sheath	Special abrasion resistant outer PA sheath with acoustic	
Gel-Filled Stainless Steel Tube	High molecular gel in the stainless steel tube where the fibre cores are located; essential for high acoustic sensitivity	
Unique Strength & Rodent Protection	High tensile strength and rodent resistant. Buried directly underground without requiring additional protection; essential for best possible acoustic sensing	
Attenuation of Fibre at 20°C	1310 nm	≤ 0.36 dB/km
	1550 nm	≤ 0.25 dB/km
Cable Diameter	4.5 mm	
Weight	32 kg/km	
Maximum Tensile Strength	Installation	1000 N
	Operation	700 N
Minimum Bending Radius	With tensile	20 x D mm
	Without tensile	15 x D mm
Maximum Crush Resistance	600 N/cm	
Operating Temperature	-40°C to 85°C	
Installation Temperature	-10°C to 50°C	
Storage Temperature	-40°C to 85°C	

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