

# **SOLIFOS**

FIBER OPTIC SYSTEMS



**Intrusion detection and perimeter control**

**Fiber optic sensing  
for reliable surveillance**

## Intrusion detection and perimeter control

Fiber optic sensor cables are optimised to measure physical parameters like temperature, strain, and acoustic/vibration signals. The information gathered from these sensors for security applications is extremely useful and numerous. Most attempts of third-party intrusion can be discovered, alerted and localised precisely. Compared with conventional solutions, these sensors are perfectly adapted for deployment along extended structures, perimeters or borders of up to 50 km per monitoring system with relatively little installation effort and material expenditure.

## Applications

### Intrusion detection and perimeter control (including structural health monitoring) for

- Airports/airfields
- Military camps
- Fuel depots
- Nuclear power plants
- Critical industrial plants
- Border control

## Description

Distributed fiber optic sensing to discover, alert and localise events precisely in real time.

### Methods available

- Distributed temperature sensing (DTS)
- Distributed strain sensing (DSS)
- Distributed acoustic sensing (DAS)
- Distributed vibration sensing (DVS)

All of these fiber optic sensing systems can be combined to dramatically improve safety and reduce the number of false alarms.

### At the perimeter

DSS: Monitors fence systems using built-in metallic FO strain sensor elements to detect demolition, removal of fence components, deformation or movement.

DAS: Detects hostile human or machinery approaches including people walking or crawling, vehicles, digging work, or excavation of tunnels by monitoring acoustic signals and vibrations along borders and perimeters and surveilling the environment in front of or between fences.

### At the structure (structural health monitoring)

DTS: Detects leaks

DSS: Detects cracks, holes, destruction of the structure, and landslides

DAS: Detects leaks, tapping, slugging, cutting, digging, excavating, creating caverns, explosions

## Subsea

Monitors intrusion and structural integrity.

Similar solutions based on DAS, DSS, or even DTS can be implemented in subsea environment and structures. The sensor cables are waterproof and in most cases the interrogation unit can be placed on shore.

## Environmental conditions

### Standard operating temperature range

–50° Celsius to 85° Celsius

### Extended operating temperature range

–180° Celsius to + 85° Celsius

– 50° Celsius to +300° Celsius

## Advantages of the fiber optic sensing cable

### Compared with point sensors

- No electronics at the sensor location
- High-temperature performance –180° Celsius to +85° Celsius or –50° Celsius to +300° Celsius
- Easy installation/low maintenance
- Long range: up to 50 km
- High reliability and stability
- Immune to EMI
- No power supply needed: fully passive sensor
- Distributed sensors provide complete coverage

### Compared to standard fiber optics for telecoms

- Optimised cable design for high sensitivity and fast response
- Cable characteristics and functionality verified by special test procedures
- High sensitivity to specific physical parameters
- Sensitivity is part of the quality monitoring
- Monitors performance in real time

## Products and services

### Broad range of different optimized fiber optic sensing cables

- Fiber optic temperature sensing cables for DTS/DTSS
- Fiber optic strain sensing cables for DSS/DTSS
- Fiber optic acoustic sensing cables for DAS/DVS

### Terminations and accessories

- Termination enclosures for joints and connectors
- Installation tools and aids, including cable ties and anchors
- Special solutions for harsh environment and subsea applications

### Services

- Solution consulting services
- Engineering
- Installation recommendations