SAFETY, EFFICIENCY AND SUSTAINABILITY THROUGH INNOVATION

OPTOSENSING SRL

For more information please visit:
www.optosensing.it
info@optosensing.it

When infrastructures become smarter, entire industries gain control, awareness, and resilience. Optosensing is driving this transformation with next-generation fiber optic technologies that turn monitoring into a strategic advantage. By combining precision sensing, automation, and advanced data intelligence, the company offers a new way to protect complex assets and anticipate risks before they become problems.

In an increasingly complex and interconnected industrial world, safety, efficiency and sustainability are essential factors to ensure operational continuity and competitiveness. **Optosensing** was founded with the mission of turning these challenges into concrete opportunities, developing advanced fiber optic technologies that transform infrastructure monitoring into a true **strategic asset** for companies.

Optosensing specializes in the design and manufacturing of **distributed fiber optic sensing systems** based on the principle of **stimulated Brillouin scattering**. Through our patented solutions, we enable highly precise measurement of **strain, temperature, and displacement** along optical fibers that can extend for tens of kilometers. This allows for continuous, accurate, and non-invasive monitoring, overcoming the limitations of traditional point sensors. Our technology offers a **spatial resolution of up to 40 centimeters,** turning each fiber segment into a

high-precision measurement point. This capability provides detailed, real-time information on the condition of infrastructures, enabling predictive maintenance and significantly reducing operational risks.

At the core of Optosensing's innovation lies **Distributed Fiber Optic Sensing (DFOS)** — a technology that uses light propagation within optical fibers to detect physical variations with exceptional spatial accuracy. The **OSD-2 measurement system** acquires and processes the signals generated along the entire fiber, providing reliable and high-resolution data that are essential for the safety and management of critical infrastructures. Thanks to advanced data processing algorithms, any anomaly — such as a **leak or structural deformation** — can be identified and precisely located, allowing for rapid and targeted intervention.

Completing the Optosensing ecosystem is the **FORI robot,** a patented system designed for the automatic installation of optical fibers along pipelines and other conduits. The robot ensures a uniform, functional, and non-invasive installation process, guaranteeing reduced installation times and maximum reliability. The combination of the OSD-2 system and the FORI robot enables fully integrated monitoring solutions — from installation to data acquisition and management. All collected information is made available through a **certified digital platform,** which offers intuitive and secure access to real-time and historical data for operators and maintenance teams.

In the **oil & gas sector,** Optosensing's solutions represent a major step forward in **safety and sustainability.** Our systems enable continuous and distributed monitoring of the entire length of oil and gas pipelines, providing immediate detection and localization of **leaks or deformations** along the pipeline. This allows operators to take targeted action, reducing downtime, maintenance costs, and above all, the risks of accidents or environmental

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damage. The non-invasive nature of our technology preserves the mechanical integrity of the pipelines while ensuring excellent performance even in extreme environments. Furthermore, the **scalability** of our systems makes them suitable for pipelines of any length and diameter, guaranteeing long-term precision and reliability.

Optosensing provides a comprehensive approach that supports clients throughout the entire lifecycle of a monitoring project — from system design and sensor manufacturing to automated installation and data management.
Each phase is supported by a highly skilled technical team and continuous assistance, ensuring consistent performance and long-term value.

This integrated monitoring model enables companies to shift from reactive to proactive infrastructure management, achieving tangible benefits in terms of efficiency, safety, and sustainability.

For Optosensing, **monitoring is not just about measurement — it's about understanding.** Data become knowledge, and knowledge becomes a tool for prevention, optimization, and progress.
Our goal is to provide technologies that empower organizations to make informed decisions, anticipate issues, and ensure operational continuity with full respect for the environment.

With proprietary technologies, an innovation-driven mindset, and a strong track record in the industry, Optosensing stands as a reliable partner for companies aiming to enhance the safety of their infrastructures and contribute to a more sustainable future.

We transform invisible signals into strategic information, ensuring that every section of your infrastructure is **monitored, protected, and optimized** — today and for the future.

opto sensing

Certified Company

ISO 27001

CONTINUOUS MONITORING OF OIL & GAS PIPELINES

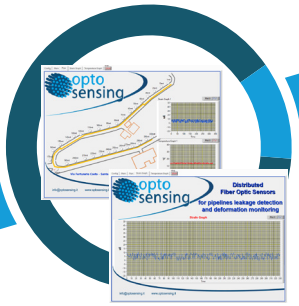
Smart fiber optic sensors for safe pipelines.

DISTRIBUTED FIBER OPTIC SENSING TECHNOLOGY

FROM INSTALLATION TO MANAGEMENT

From the supply of the Fiber Optic sensor and the OSD2 Measurement System

To the automatic installation of the fiber sensor with the FORI® Robot



To the management of systems and data on our Platform

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