APSENSING.



Protecting Critical Underwater Infrastructure

The Challenge

Global connectivity and economic prosperity rely heavily on the secure operation of subsea infrastructure. Subsea power and telecommunications cables, as well as underwater pipelines, form the backbone of international energy and data transmission. Yet, these critical assets are increasingly exposed to risks such as accidental anchor drags, fishing activities, and even deliberate sabotage. In remote marine environments, monitoring such assets across hundreds of kilometers is a complex but vital task to ensure continuity and resilience.

The Innovation

Just as the nervous system in a human body transmits sensory information, Distributed Fiber Optic Sensing enables a single optical fiber to serve as a vast network of sensors. When laid alongside subsea infrastructure, the fiber can detect, locate, and classify anomalies such as anchor drops, drags, vessel movements, trawling activities, and interference with pipelines or cables.

Detection and localization are performed in real time, providing operators with immediate situational awareness also support forensic investigations by recording activity patterns that may indicate sabotage or environmental threats. By tracking vessel movement or seabed interaction, AP Sensing delivers vital insights for protecting underwater critical assets.

The Solution

AP Sensing's 2P Squared DAS is a true phase-based sensing technology, designed to detect vibrations, acoustics, and temperature changes across long subsea distances using standard optical fiber. Acting like a network of thousands of hydrophone-



Anchor drop detected on a subsea cable using DAS technology

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like sensors, the system continuously monitors up to 150 km of subsea cable or pipeline and identifies events with meter-level resolution.

Artificial intelligence and our decades of signal processing expertise enables our detection software to identify and categorize events such as vessel anchoring, trawling, unauthorized access, and other subsea activities. These algorithms recognize environmental disturbances and sound patterns unique to subsea conditions, distinguishing between benign activity and potential threats. Finally detecting, classifying and locating in real time along the entire subsea asset.

Reliable & Effective

AP Sensing's comprehensive solution for subsea infrastructure monitoring ensures reliable detection of anomalies and intrusion attempts. Real-time localization allows operators to take rapid action protecting data and power flow across oceanspanning systems. With over 600 customers in 70 countries and more than 5,000 systems deployed, AP Sensing delivers trusted security to vital subsea infrastructure.











VdS





Why AP Sensing?

- Industry-leading subsea monitoring solution featuring advanced fiber optic hardware and Aldriven event classification.
- Exceptional performance powered by 2P Squared DAS and code-correlated DTS technologies.
- Long-range monitoring up to 150 km per unit, capturing real-time acoustic events with pinpoint accuracy.
- Accurate classification of subsea events including vessel movements, anchor drops, and dredging.
- Global leader in monitoring subsea power cables, telecom lines, and offshore pipelines.
- Engineered, developed, and manufactured in Germany.

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