



Subsea Power Cable Monitoring

The Challenge

The demand for subsea power cables has increased significantly in recent years. This is largely due to a global focus on environmental issues, which has led to the installation of more offshore wind parks and increasingly interconnected national electric grids. Oil & gas companies are replacing local generation on offshore platforms with power feeding from the mainland.

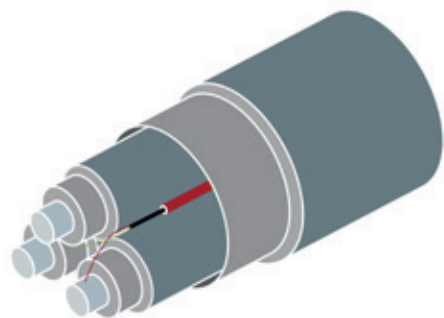
Subsea power cables are at risk during operation, as the cables can be damaged by fishing trawlers and ship anchors – particularly at unburied, exposed sections. The time to repair a subsea power cable can vary from weeks to many months, depending on ship availability and the ability to precisely locate the damage. This has the potential to result in large financial losses.

Power generated by offshore wind parks varies substantially with time, requiring a dedicated cable design and asset management. The current industry seeks to balance minimal thermal aging of cable insulation with the smallest appropriate cable size.

AP Sensing's complete power cable monitoring solution assists operators in successfully managing and mitigating these challenges.

The Innovation

AP Sensing's solution offers a ground-breaking combination of Distributed Temperature Sensing (DTS) and Distributed Acoustic Sensing (DAS) technologies, utilizing fiber optic cables already integrated in or externally attached to the power cable. We measure a continuous temperature profile along the power cable to monitor thermally critical sections like landfalls or j-tubes. Conductor temperatures and cable ampacities (real time thermal rating – RTTR) as well as the depth of cable burial (DoB) are computed frequently; hotspots are detected immediately. Permanent acoustic measurements help to reduce downtime by locating cable faults as well as identifying cable damages caused by trawlers and anchors.



Subsea cable

World-Class Systems

Thanks to our patented code-correlation technique, AP Sensing's monitoring solution includes an ultra-modern, high performance RAMAN DTS system. Our system captures temperature events very accurately, while unaffected by cable strain that typically causes misinterpretations for other DTS technologies. Consequently, our DTS instrument is a perfect tool for RTTR and DoB computations.

Acoustic measurements are collected with our world-class, phase-based DAS system. Our unique 2P Squared technology features stable signal linearity and high sensitivity over long distances. Smart alarm algorithms detect and automatically classify third party events. Cable faults are located immediately, with much more precision than conventional methods. The powerful, integrational SmartVision management software completes our AP Sensing monitoring solution.



Reliable & Efficient

AP Sensing's comprehensive monitoring solution for subsea cables provides an effective way to mitigate operational and financial risk. Identification and elimination of thermal bottlenecks increase cable lifetime and safety. Dynamic cable ratings optimize utilization of the asset, while still observing cable limits. Monitoring burial depth of the cable ensures that exposed cable sections become apparent, enabling preventative measures to reduce the risk of cable damage.

In addition, intentional or accidental third party intrusion events are recorded, helping operators to develop awareness of hazards and identify the party responsible for the damage. Immediate and accurate cable fault location significantly improves repair times, therefore diminishing unscheduled cable downtimes.



Subsea cable installation

Why AP Sensing?

- Industry-leading monitoring solution comprising DTS, DAS, RTTR and DoB that offers excellent performance.
- Best measurement results due to unique technologies such as code correlation and 2P Squared.
- No drift and no recalibration thanks to patented single-receiver design and inherent strain insensitivity (no strain cross-talk).
- Industrial quality supported by a complete set of type tests and certifications in compliance with internationally recognized standards.
- Project management, commissioning, and post-sales service; world-class support for project planning, design and installation.
- Our experience, network of regional partners and experts, and proven deployment in all regions in the world.

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