



ECG™: Holistic Cable Infrastructure Management System

ECG™ is a holistic monitoring system providing electrical, thermal and mechanical data for cable and termination systems. It integrates unique technologies to predict when cable faults and failures will occur, enabling a proactive maintenance strategy. It provides continuous, real-time monitoring of high-voltage (HV) cables, terminations, and joints, delivering a complete overview of cable system condition, integrity, and performance. By allowing you to identify degradation and potential risks before they cause a failure, ECG™ optimises operational costs and extends asset life, making it a valuable solution for new and existing submarine cable system applications.

ECG™ seamlessly interfaces with existing fibers within HV cables to deliver advanced electrical, thermal, and acoustic monitoring technologies in one platform. This unified approach provides a holistic view of cable and termination health through a single, intuitive interface, eliminating the complexity of managing disparate systems, and makes it easily applicable to new construction or retrofit projects.



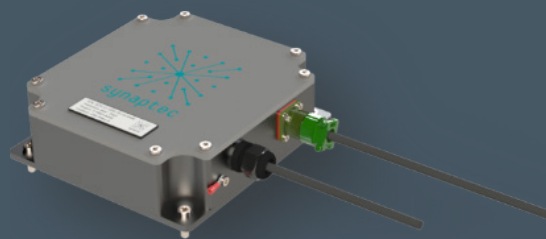
ECG™ cabinet

Core Monitoring Capabilities

ECG™ delivers comprehensive insights by continuously analysing key performance indicators across your entire cable network.

Advanced Electrical Monitoring

ECG™ permanently and synchronously monitors the critical relationship between termination temperatures, phase currents, and screen currents. All sensors are fully passive, requiring no additional power or data networking at the measurement locations. This allows the system to monitor for precursors to partial discharge events, compare phase and screen current values to identify imbalances or insulation degradation that could lead to failures, providing early warning to the operator.

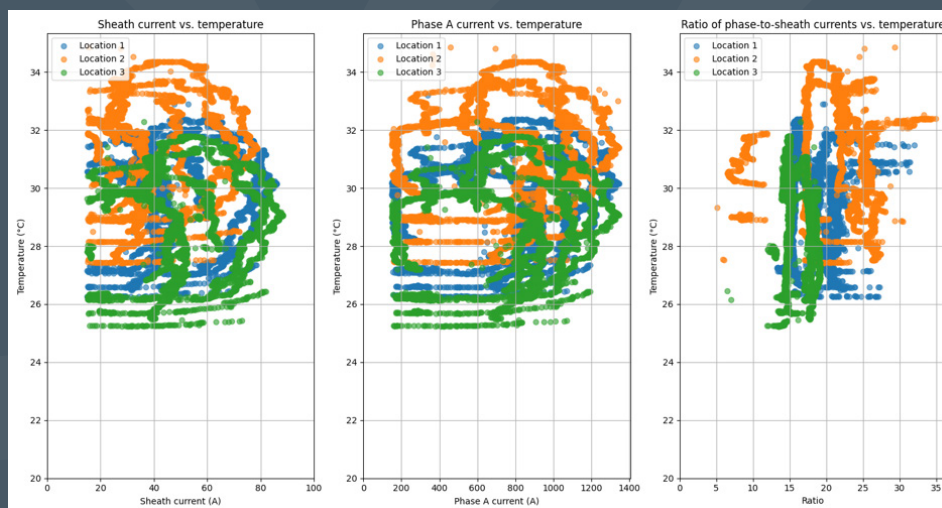


ECG™ uses optical fibre to capture precise current and voltage data from remote locations



Continuous Thermal Monitoring

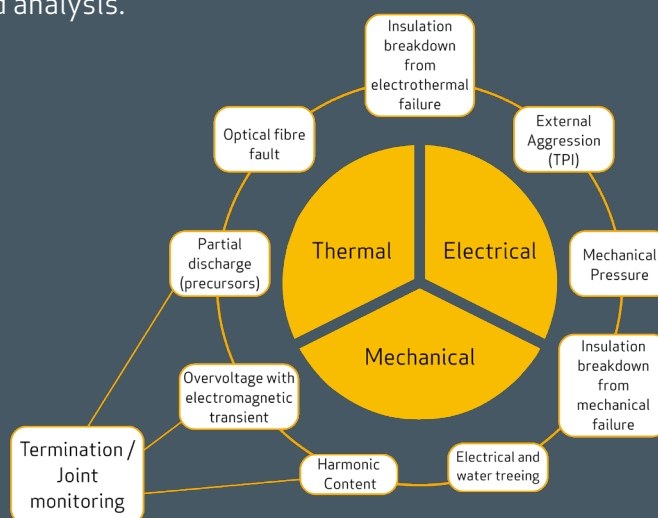
ECG™ provides continuous temperature monitoring along the entire power cable circuit. This capability is crucial for detecting hot and cold spots, and defects that indicate potential faults or inefficiencies. The integrated Real-Time Thermal Rating (RTTR) software uses this data to calculate conductor temperature, ampacity, and emergency ratings, allowing operators to safely maximize energy throughput and manage thermal constraints.



ECG™ synchronously monitors phase and sheath current vs temperature to identify deviations in normal behaviour to optimise maintenance

Real-Time Acoustic Monitoring

Using sophisticated acoustic processing algorithms, the system detects, classifies, and locates potential threats to subsea cables in real-time. This includes third-party intrusion events such as anchor drops and trawling, as well as cable-specific issues like movement, free-spanning, entry stress, and Vortex Induced Vibration (VIV). ECG™'s system detection modules dynamically adapt to environmental conditions to ensure robust data collection and analysis.



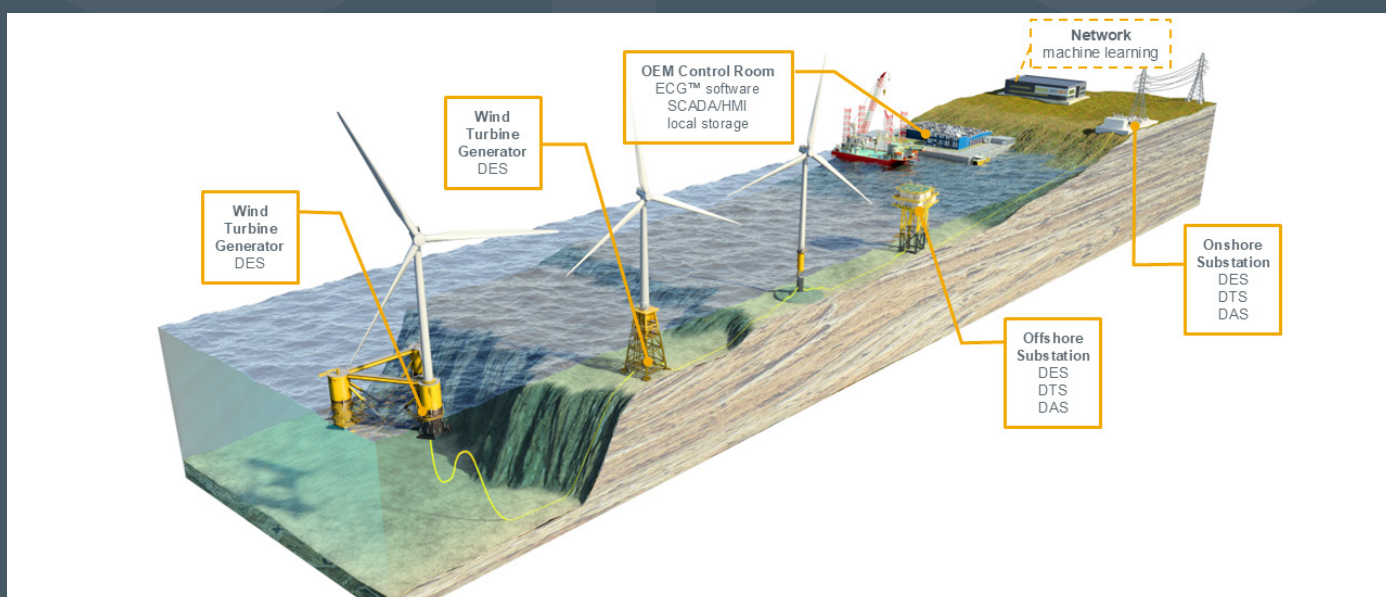
ECG™ monitors more failure modes for submarine cables than other cable monitoring solutions in the market

A Holistic Solution for Cable Integrity

By integrating multiple data streams, ECG™ delivers a comprehensive overview of the cable system, protecting your most critical HV assets.

- **Fault Detection and Prediction:** Detects thermal and electrical faults in cable terminations and identifies precursors to failure in cable lengths. The system supports fault localisation and prediction.
- **Performance Optimisation:** Through dynamic cable rating's ECG™ provides the capability to optimise power throughput.
- **Threat Identification:** By integrating AIS, ECG™ can provide information on third-party intrusion detection to prevent cable damage from activities like anchor drops and trawling.
- **Degradation Monitoring:** Tracks the ongoing, gradual degradation of cable insulation.
- **Subsea Stability Monitoring:** Assesses cable movement, Depth of Burial, and free-spanning of cables.

Location of ECG™ system equipment across the windfarm



Integrated centralised monitoring provides electrical, mechanical and thermal monitoring throughout the cable and termination system

Intelligent and Intuitive Software

ECG™ is supported by a powerful, user-friendly software suite that provides a complete overview of your infrastructure's health. The custom Human-Machine Interface is designed using the latest Human Factors research to provide an intuitive and holistic viewpoint of all cables and terminations.

Key Software Features Include:

Unified Dashboard: A single dashboard highlights alerts, alarms, and their precise locations, consolidating data from all sensors to provide actionable analysis ahead of failure.

Dynamic Alarm Setting: The alarm system intelligently responds to the specific operational characteristics of each cable and the local environmental conditions to understand where the limits of thermal and electrical behaviour are at any given moment.

Continuous Learning: Integrated algorithms continuously learn from the data to understand normal behaviour at the site, and improve the detection of failures and deviations from normal behaviour.

Automated and Detailed Reporting: The system delivers automated quarterly cable integrity reports and an annual performance review to support asset management and operational planning.

Selected for the World's Leading Wind Farms

ECG™ is a trusted solution that provides vital subsea cable intelligence for the world's most significant offshore wind projects.

Dogger Bank A, B and C: On the world's largest offshore wind farm, ECG™ is used to ensure critical cable reliability, enabling proactive maintenance and management of thermal constraints for a project powering millions of homes.

Hywind Scotland: Chosen for the world's first commercial floating offshore wind farm, ECG™ will deliver the real-time data and predictive analytics required to cut OPEX and boost energy throughput on demanding floating platforms.

Hywind Tampen: Easily retrofittable and equally applicable to power-to-X projects, the system is currently deployed on the Hywind Tampen wind farm. On this project, it monitors the offshore wind farm and the interconnectors to ensure the reliability of the HV system.

"Proserv are now translating their subsea experience into solutions for offshore wind. We're excited to be supporting Proserv on the Dogger Bank Wind Farm and ECG™ technology, and we look forward to working with them, alongside DEME, as we continue to build the world's largest offshore wind farm with best-in-class wind farm operations." - Halfdan Brustad, Vice President Dogger Bank Operations

Contact our sales representatives

Email: info@proserv.com

Scan the QR code to find out more about ECG™

