



Acoustic Power Cable Monitoring

Herrenberg-Guelstein, Germany

AP Sensing is monitoring a 110kV underground high-voltage power cable utilizing Distributed Acoustic Sensing (DAS). The cable is located between the substations of Herrenberg and Guelstein, Germany with a total length of 6 km. The end customer selected an AP Sensing solution over many other competing systems due to the outstanding performance of AP Sensing's solutions.

The acoustic monitoring system consists of a DAS system and an external data storage unit, integrated into a portable rack to allow for flexible transportation between the substations. DAS is used to monitor the cable for acoustic signals that would indicate a fault or a Third Party Intrusion (TPI) event that could be harmful for cable operation. The system is comprised of one single-channel N5000A DAS interrogator unit with a 40 km measurement range, DAS data acquisition unit and data storage unit. It is configured to monitor the power cable in real-time, visualize the acoustic energy over time/distance in waterfall plots and store the measured data.

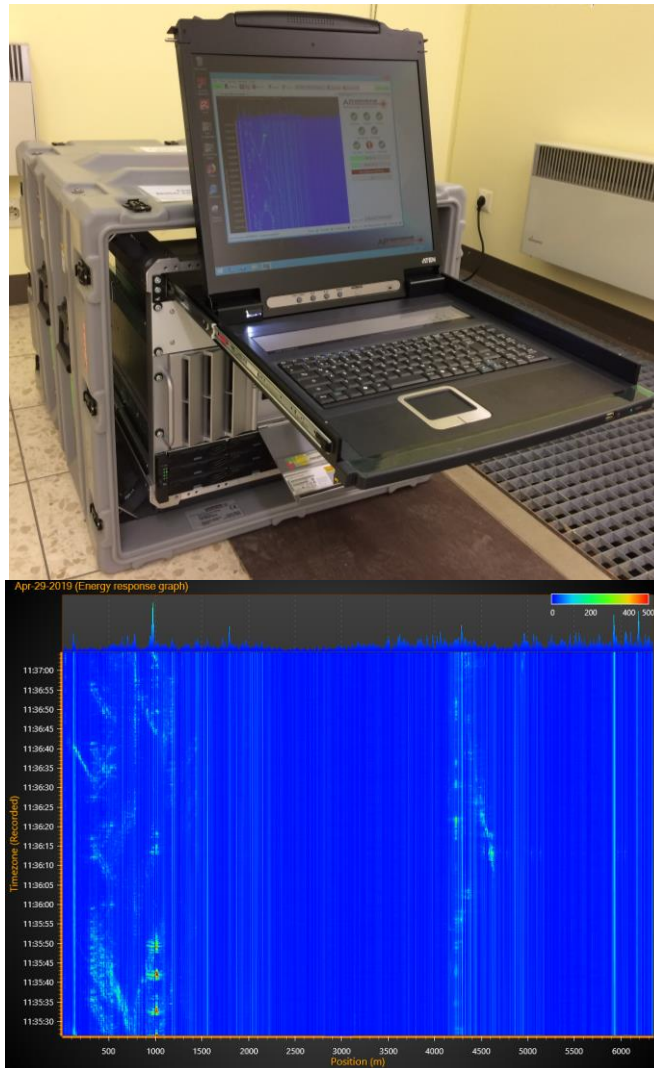


Power cable in Herrenberg substation

The primary purpose for using AP Sensing's DAS system for this project is to monitor an available power cable in order to study the usability of the DAS system for future, prestigious projects. This project represents a keystone of monitoring power cables in larger power infrastructure projects utilizing acoustic monitoring technologies.

A key feature of DAS is the ability to immediately detect and locate cable faults. This helps optimize transmission and distribution networks, and reduces costly and unnecessary operational costs and asset downtime.

AP Sensing's experienced project engineering team commissioned the DAS system in April 2017 and the monitoring solution has been operational since its commissioning with no maintenance required. In April 2019 a site visit was conducted. The DAS system was running uninterrupted and error-free, demonstrating its robustness.



Installed system; Waterfall diagram of acoustic signals along the power cable route