



220 KV Power Circuit Monitoring with Temperature Map View

France

A new 220 KV underground power circuit traverses many different types of soil conditions along its 25 km length. AP Sensing's fiber optic-based Distributed Temperature Sensing (DTS) solution was selected by the network operator Réseaux de transport d'électricité (RTE) for its reliability and ruggedness, as well as AP Sensing's innovative asset visualization capabilities.

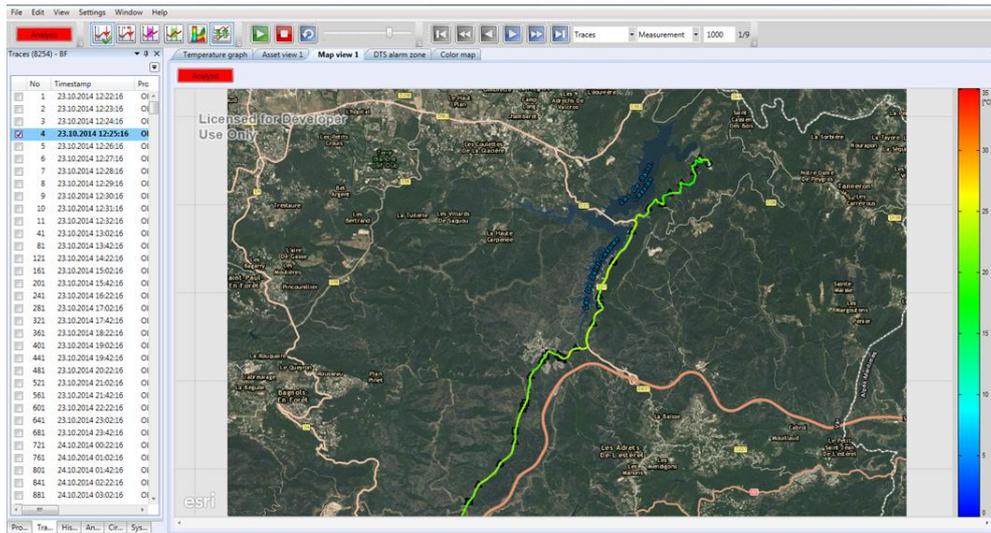
A one channel AP Sensing DTS device measures the 25 km underground circuit with a singlemode optical fiber for continuous temperature measurements. The buried HV transmission line travels through **14 different types of subsoil conditions**. The circuit load is recorded by the AP Sensing Multi Sensor Board's analog inputs and then shared with the SmartVision data management and asset visualization software.

AP Sensing's SmartVision software suite automatically detects multiple hotspot locations, issues alarms if pre-defined temperature limits are exceeded and creates temperature profiles in an SQL database for post processing and analysis.



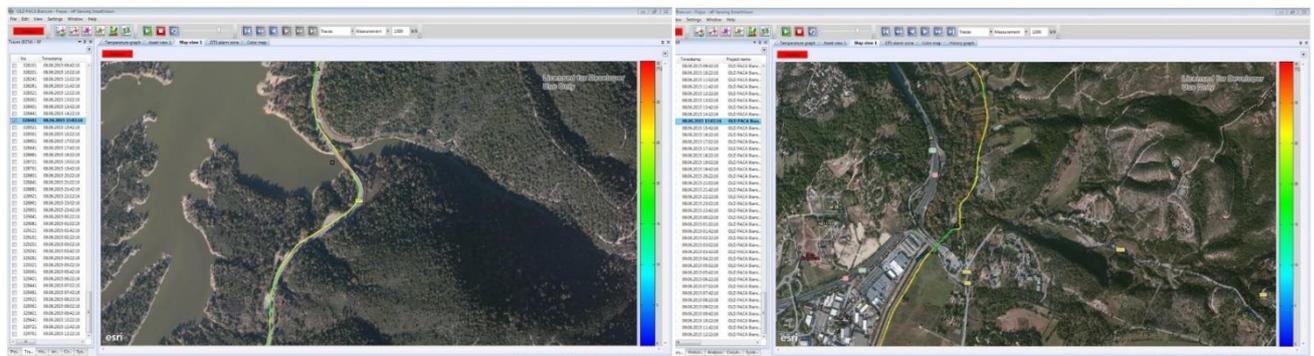
Rural area in southern France

The asset viewer delivers **color-coded circuit monitoring statuses to the operators and network planners**. This fiber-to-the-infrastructure mapping lets the operators pinpoint **exact alarm locations** and **place landmark symbols along the route**, such as joints and splice locations.



Map View of a section of the circuit

In addition, when in Map View, the map can be zoomed in and out, providing a resolution up to 1:5000 to show even greater details including street names. GPS coordinates are used to map the circuit route itself for maximum viewer accuracy. Remote and secure SmartVision access is also available at the RTE headquarters in Paris.



Left: Hot spot on a bridge()*

Right: Horizontal drilling cold spot ()*

(*) Temperature readings taken during hot weather in Summer.

To reduce the on-site installation and commissioning time, AP Sensing delivered the system fully integrated into a system cabinet, which is located in a protected control room.

The complete system provided to the client included the DTS device with integrated Multi Sensor Board, an industrial PC and the AP Sensing SmartVision software suite with full data integration.