Overhead line monitoring

Synaptec's Overhead Line Sensor (OHLS) provides instant warnings of dangerous sag, strain, temperatures, and vibration on remote HV assets. This is ideal for monitoring overhead power lines and optimising scheduled maintenance costs, avoiding outages and reducing public safety risk.

Synaptec sensors are easy to retrofit and require no 4G/5G signal, power supplies, or data networks, providing live data more reliably and securely from remote critical spans.

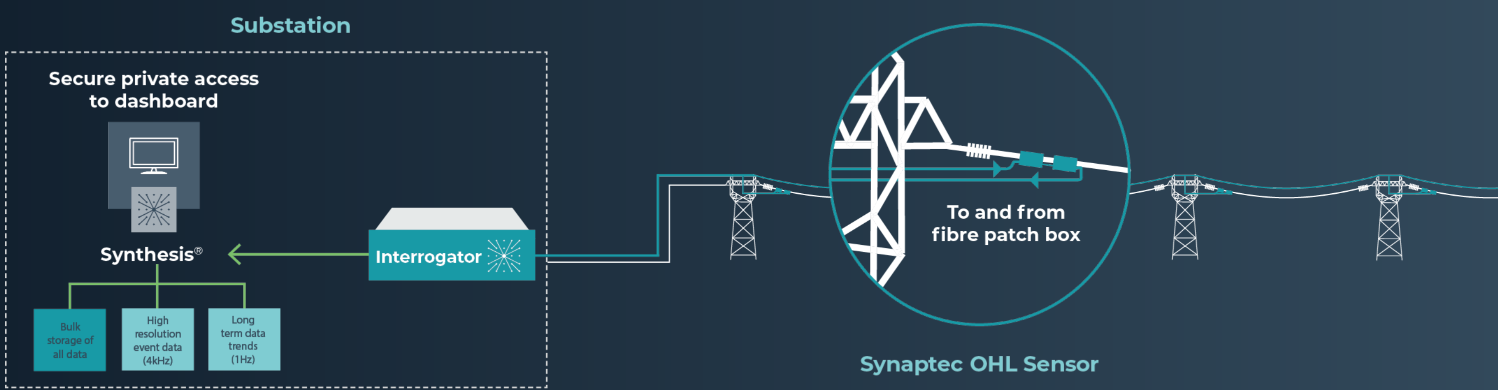
Synaptec overhead line sensors are networked via existing optical fibre in the OPGW. To safely connect sensors to the fibre network, we use AFL's Phase-to-Ground technology. AFL provides industry-leading solutions, products and services to the energy markets by manufacturing, engineering and installing fibre optic products and associated equipment.

Overhead Line (OHL) Monitoring

Detecting ice loading, sag, galloping, or downed lines in remote locations is challenging and expensive. Synaptec provides time-synchronised current, temperature, vibration and strain measurement which is useful in areas of extreme heat or cold, or where there is no power or 4G/5G coverage or intermittent service. Streaming data from the sensors is timestamped, published and analysed centrally. Early warnings of excessive movement, sag or temperature caused by storms, ice build-up, solar and ohmic overheating are provided in real-time by Synthesis®, a convenient web-based dashboard.

Synaptec passive OHL sensor

Synaptec has developed a passive OHL sensor, which clamps safely onto the phase conductor. This allows the precise measurement of line sag, vibration and temperature in real-time. Synaptec sensors require no power supply, no 4G/5G signal, no data networks or batteries. This reduces weight, improves safety and security, and affords easy installation with no periodic maintenance or recalibration required for over 25 years. When combined with Synaptec's passive current sensors, the same system enables real-time ampacity and more accurate Dynamic Line Rating (DLR) on multiple remote spans.

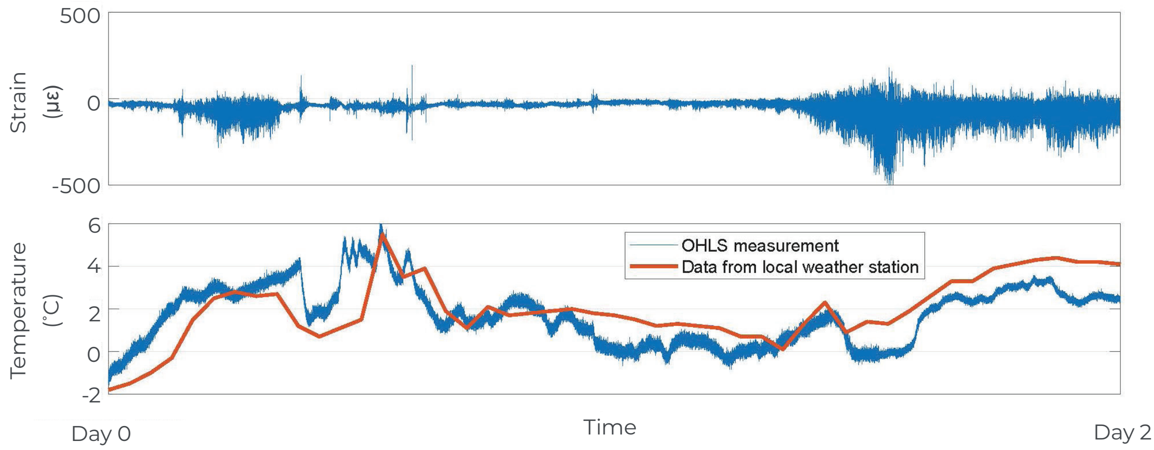


Key benefits

- Live correlation of current, voltage, temperature, vibration and strain in one scalable condition monitoring and visualisation system
- Requires no data networks, control power or expensive civil works
- No ongoing maintenance (e.g. batteries)
- Sensor lifespan of 25+ years
- No periodic calibration
- Integrates with SCADA and third-party data for DLR forecasting
- Easily retrofits to any MV or HV line
- Connected via single mode fibre (e.g. OPGW or ADSS)
- All measurements are time synchronised

Precise, real-time data

The graph below shows a significant increase real time variation between the temperature of the phase conductor and what the local weather station estimated for the same location. This difference is vital for accurate Dynamic Line Rating and for validating probabilistic thermal models, as operators try to maximise use of existing circuits safely to cope with changing demand. As well as refining DLR models, Synaptec sensor systems provide accurate condition monitoring over time to optimise scheduled maintenance, and trigger alarms when thresholds are exceeded, such as dangerous changes in vertical ground clearance.



Components

- [Synaptec Interrogator]
- [Overhead Line Sensor (OHLS)]

Questions? Get in touch with our team to discuss how our technology can benefit you:

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