Distributed Electrical Sensing

Distributed Electrical Sensing (DES) is a precision measurement technology that allows power system operators to protect and monitor their networks with unprecedented flexibility. Using the optical fibre within power networks, DES makes high-fidelity measurements of voltage and current at many locations over distances of up to 60 km from a substation.

The entire sensor array is completely passive, meaning no control power or auxiliary equipment is needed at sensing locations. Synchronised waveform data from all sensing locations is available at the speed of light, enabling a wide range of protection, control, and monitoring functions to improve reliability and security, reduce unplanned maintenance, and significantly reduce operational cost.

Why choose DES?

Quick to install. Commissioned from a single location. No maintenance requirements.
DES deployments are simple and elegant, avoiding complex wiring and telecoms. Full sensor networks supporting protection or monitoring are typically installed and commissioned in days rather than over weeks.

Measurements synchronised to within one microsecond, and processed in under 200 microseconds.
DES delivers the world's fastest protection and monitoring systems. Make instant and informed decisions on your network with synchronised waveform data.

Easily compare multiple remote measurements across hard-to-reach locations.
Monitor your networks at scale with multiple sensors deployed over 60 km of optical fibre, with no requirement for power or data networks at the sensor location.

Ultra-stable year-round in the most challenging environments.
Simple and resilient sensors that automatically adjust to environmental conditions, ensuring accuracy in all conditions.

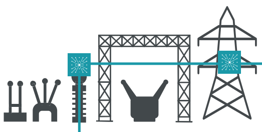
Cyber-secure sensor networks with no data exposure.
Our hardened sensor networks transmit no data. Data is only produced within the safety of the substation environment, ensuring your vital insights are never exposed.

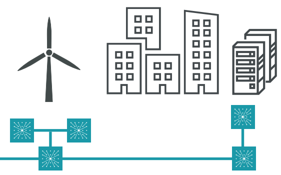
Fully passive sensing networks of voltage and current.
Using optical fibre within power networks, Distributed Electrical Sensing enables high-fidelity measurements of voltage and current at many locations over distances of up to 60 km from a substation.

synaptec
powered by Megger.

One technology, multiple applications

Our DES technology is the ideal solution for a range of applications on power grids, offshore and industrial networks.





DIGITAL-READY INTERROGATION IN SUBSTATION

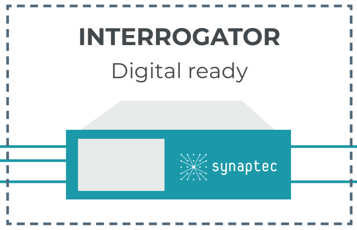
- Uses conventional CTs, VTs and established line differential protection methods
- One IED for protection, automated condition monitoring of vital HV assets, distributed power quality analytics and digital twins
- Centralised, digital-ready, and scalable protection
- No data networks or control power required at any location

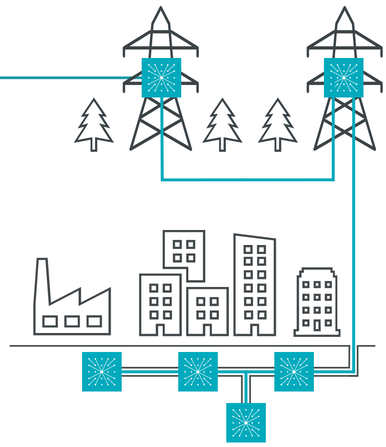
MIXED CIRCUIT PROTECTION

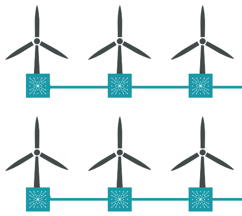
- Discrete auto-reclose blocking on faults in multiple sections such as:
- Remote cable sections
- Cable tail ends
- In-circuit transformers
- Multiple cable sections and spurs
- Eliminates the risk of auto-reclose on cable sections

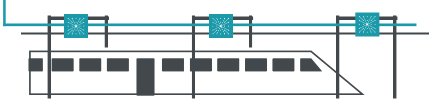
COMPLEX FEEDER PROTECTION

- Deploy multi-ended and multi-zone differential protection schemes
- Easily accommodates branched sections, renewable connections, and microgrids
- Upgrade distribution feeders with transmission-grade protection
- Solution for preventing power line-caused wildfires









RENEWABLE GENERATION

- Early warning of power cable and termination failures at multiple locations
- Retrofittable for array, export, dynamic cables
- More accurate Real Time Thermal Rating
- Permanent and synchronous harmonics from every turbine
- Scalable, flexible protection of array cables
- Simplified substation and grid connection instrumentation

INDUSTRIAL/PRIVATE POWER SYSTEMS

- Distributed protection, control, condition monitoring in one system
- Earlier warning and more accurate location and characterisation of faults

REMOTE-ASSET MONITORING

- Truly automated condition monitoring of assets beyond the substation fence
- Works where no control power or telecommunications are available
- Ideal for underground and subsea cable system monitoring
- Live ampacity for remote spans
- Tower and line damage from intrusion or weather event

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

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