SALTEC

combines ENGINEERING
SUPPLY
INSTALLATION

Wherever the DTS project is located

DTS

= **D**istributed **T**emperature **S**ensing

Monitoring of HV Power Lines

… you require an optical fibre inside or outside of the cable and your system control is getting those data which provides more safety and optimization of your grid.

Why…

- … because you can use your existing grid substantially much MORE EFFICIENTLY

  Depending on the already installed material and equipment you may expect up to 40 % more transport capacity of energy without further investments to the grid itself …

- … because you can PREVENT DAMAGES to the installations

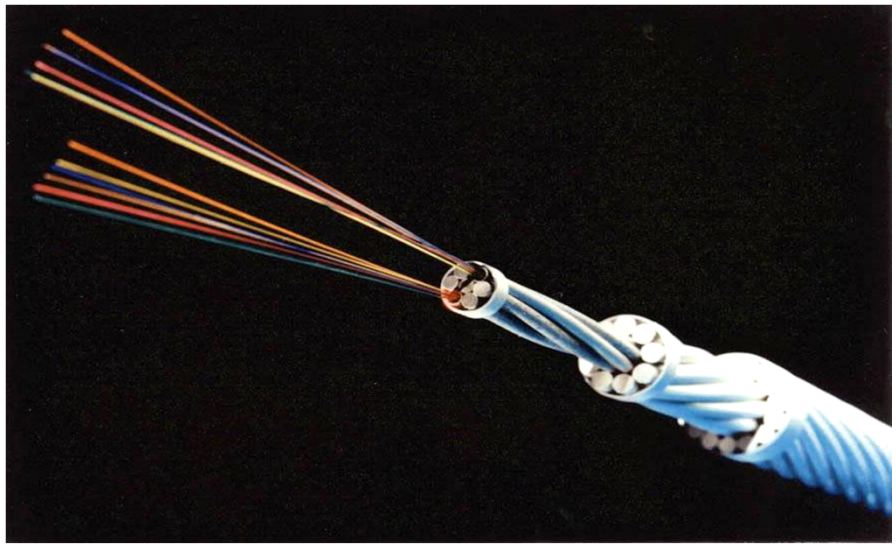
  Since you are informed about the status of the grid load you can interfere before any fusing elements stops the energy flow …

- … because you can OPTIMIZE THE ENERGY FLOW in the entire grid

  There might be unexpected bottlenecks or temporarily short termed changes in the energy demand in certain sectors of your grid which require immediate actions …

Can be used for ...

- XLPE Cable with integrated optical fibre in the screen area
- Phase wire with optical fibres (OPPC), also available as ground wire (OPGW)



During the production process of the cable resp. the wire an optical fibre is being implemented in the conductor of the relevant wire or in the screen area of the cable.

... even for existing XLPE cable without optical fibre

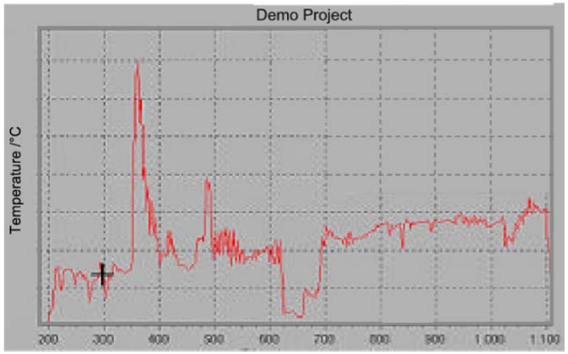
- In such case we provide the option to add externally the optical fibre cable to the outer sheath of the XLPE cable.
- A few examples of fixing are shown below.
- In some applications an additional optical fibre is required for temperature measuring of the back-fill material around the high voltage cable.

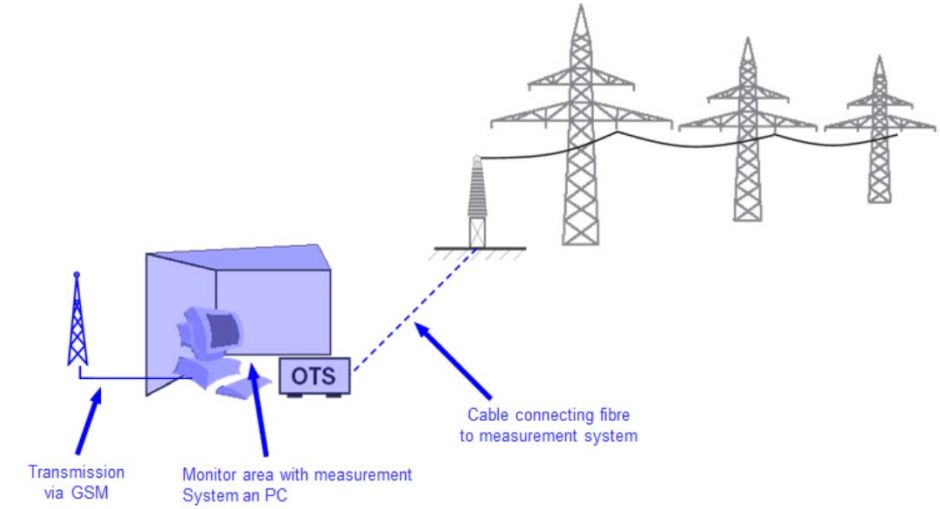
How it works

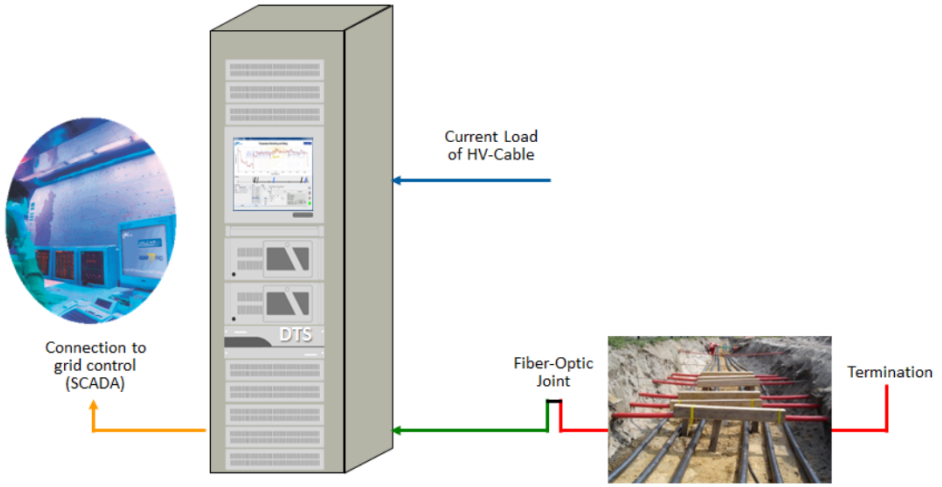
- Distributed Temperature Sensing Systems are optoelectronic devices which measure temperatures by means of optical fibres functioning as linear sensors.
- Temperatures are recorded along the optical sensor cable, thus not at points, but as a continuous profile.
- A high accuracy of temperature determination is presently achieved for distances up to 50 km

The setup

At the end of the cable line a controller is measuring the real time temperature of the line continuously, providing the actual values by a fast SCADA connection on the operator‘s screen.

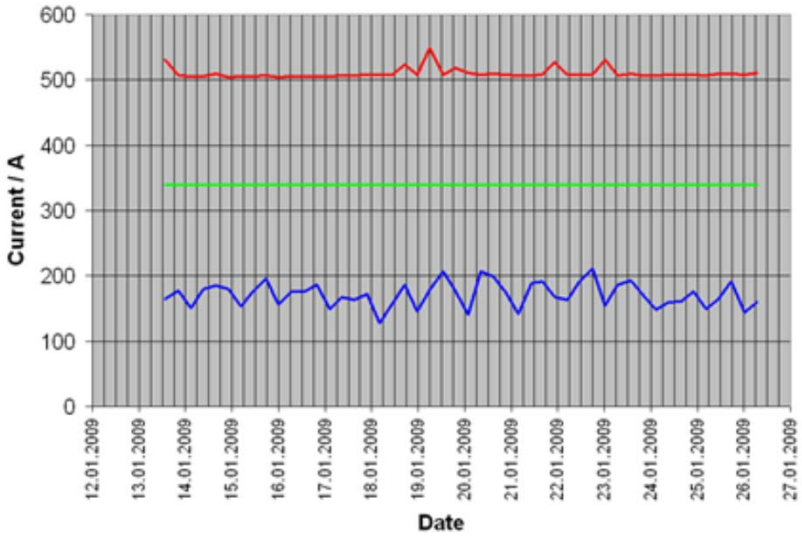






Surplus

- Experience has shown, that there are differences up to 40 % between the max. permissible load and the actual current.
- You are wasting already existing resources because of safety aspects since the actual permissible limit is unknown.
- This system provide the platform to know what can be transported more without risk to endanger the grid.



Actual current

Continous current carrying capacity (manufacturer value)

Calculation of the real maximum cable load with DTS

Additional benefits

Furthermore the system easily can be used to LOCALIZE HOT SPOTS, such as coming from other heating sources in the surrounding of the line, or defects of the cable or wire itself.

Additionally an alert can be implemented for fast rising temperatures, i.e. caused by FIRE, especially in tunnels or buildings, such as substations or underground distribution chambers.

... your existing lines are without optical fibres?

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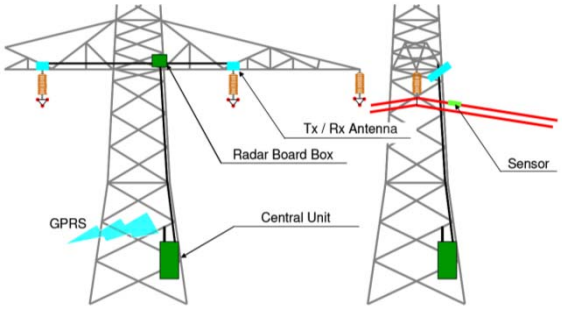
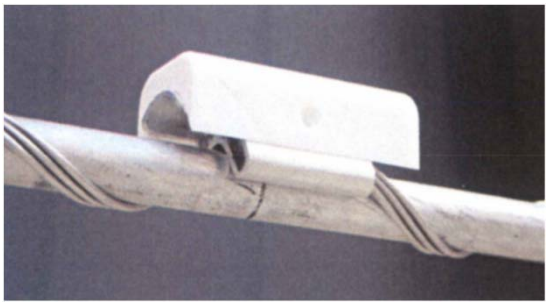
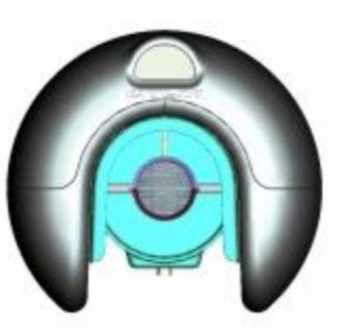
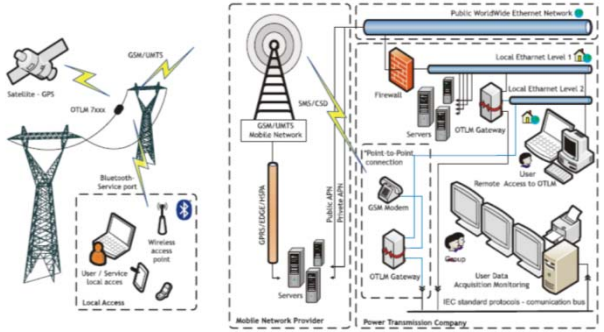
For overhead voltage lines with existing wires without optical fibres local temperature sensors are being implemented at several points, such as the beginning and the ends of each section, in order to use the system also for these utilities with a similar setup.









The sensors enable a potential free temperature measurement to provide always the actual status of the line, directly transmitted via GPRS to the operator‘s screen.

Summary

Doesn‘t matter if a new line is being planned or an existing line needs to be upgraded:

By using the newest technology it‘s possible to increase the capacities of power lines, by getting a more safety service in parallel.

Theoretic calculations are nice -

but the life praxis is much better!

for more details you are welcome with …

SALTEC GmbH
Papenkamp 3
D-21376 Salzhausen Germany

Phone: +49 4172 9895 0
Fax: +49 4172 9895 44
E-Mail: info@saltec.de
Internet: www.saltec.de