

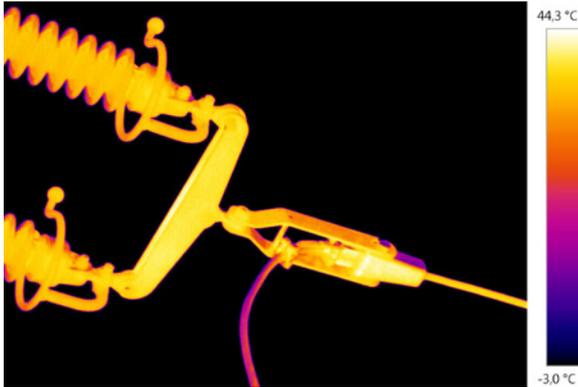
## Testing high-voltage systems with thermal imagers from Testo.



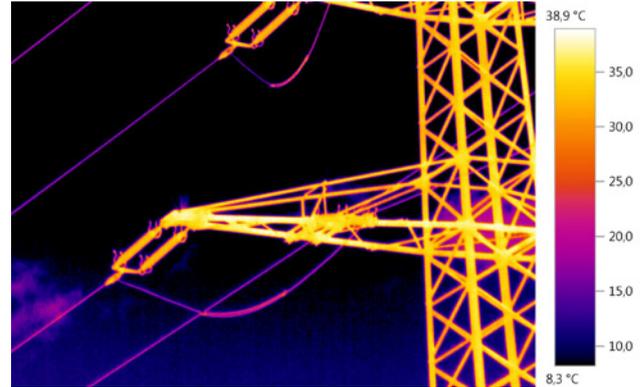
### **Thermography increases reliability of supply**

As an integral part of electrical supply networks, high-voltage systems such as substations must ensure as uninterrupted a supply of electricity as possible due to the high availability of their electrical systems. A malfunction or interruption of the electrical grid is often preceded by thermal warming caused by electrical resistance.

This must be localized, evaluated and if required, the time frame for a repair determined. Using the thermal imagers from Testo, thermal warming can be tested without contact and from a safe distance, without endangering the user or needing to shut down the system.



Checking the clamp connection on the isolator



Thermal image of the current loop on a dead-end tower

**The challenge.**

Most symptoms of wear, material fatigue or cable rupture in the transmission of electrical current are preceded by thermal warming due to increased resistance. If this resistance becomes too high, the heat development destroys the component, with the possible result of a power cut. The objective of maintenance work is to obtain an overview of the switchgear which is comprehensive as well as detailed – including all circuit breakers and power switches, converters, insulators, screw fittings, cables or other connections.

A further challenge lies in the cooling oil of the transformers. Due to eroded insulation, slurry can occur here, which is deposited in the cooling ribs. The blockage of the through-flow in the affected cooling ribs initially compromises the cooling, and in the worst case can result in the failure of the complete cooling function of the transformer.

**The solution.**

With the testo 885 and testo 890 high-resolution thermal imagers, these potential sources of error can be quickly and precisely identified before they become serious problems endangering the reliability of supply. The camera's wide-angle lens quickly provides a meaningful overview of the overall status of the system being tested. The super-telephoto lens is recommended for precise thermography of distant measurement objects too. This accessory for instance means that the smallest measurable object (an object that it is not just possible to detect but whose temperature can also be reliably measured) is only 5.4 mm for the testo 890: this is 8.1 mm for the testo 885 (measurement distance in both cases: 10 m). For example, this allows the smallest cable ruptures or temperature increases in circuit breakers to be evaluated from a safe distance. The large fold-out, rotatable display of both cameras allows overhead imaging work and, in combination with the ergonomic, rotating grip, the imagers can be reliably handled even in inaccessible places. Finally, the status of the system being tested can be professionally documented using the intuitive evaluation functions and easy reporting of the testo IRSofT analysis software.



Thermal imager testo 890

**More information.**

More information and answers to all your questions concerning thermography at [www.testo.com](http://www.testo.com).