

Case study

Smart Navigator 2.0: Transparency in the overhead line network

Faster and more efficient troubleshooting
using 400 Smart Navigator 2.0 sets | Westnetz GmbH



Digital overhead line network monitoring - Horstmann delivers 400 digital overhead short-circuit indicators Smart Navigator 2.0

Challenges

As the largest distribution network operator in Germany, Westnetz is responsible for numerous overhead lines in addition to the relatively fault-resistant underground cables. Many of them are located in rural areas with difficult topography.

This presents the network operator with some challenges because the overhead lines are not only more prone to faults, but also often cause time-consuming and cost-intensive troubleshooting measures.

So far, the source of a fault in the overhead line network can often only be located locally – by reading short-circuit indicators in the overhead line sections – and not remotely. Therefore, service crews go out and narrow down the faulty line section kilometre by kilometre until the cause of the fault is found. They often have to work their way through forests and rough terrain, which further complicates the search. Since the duration of the fault and the service disruption in such cases are a significant factor for quality regulation, time and cost pressure is correspondingly high.

Solution

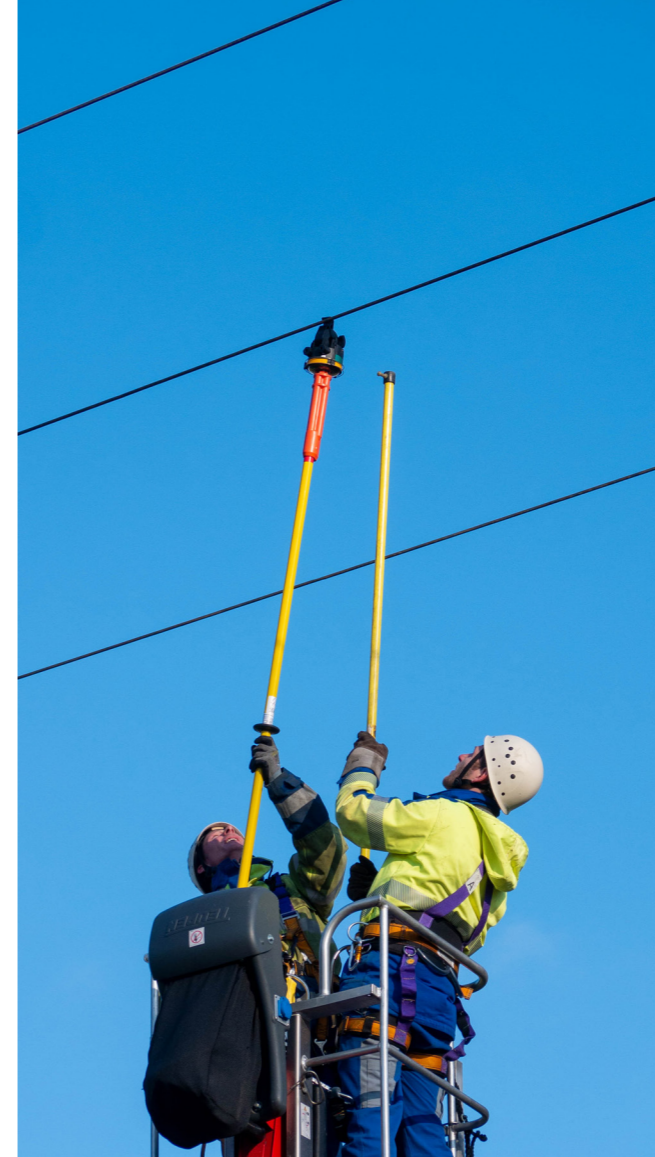
Westnetz was looking for a simple, safe and efficient solution to be able to locate faults and disconnect overhead lines much faster in the future. The network operator came across the digital overhead line short-circuit indicator Smart Navigator 2.0 from Horstmann.

The robust and compact measuring device is mounted at strategic locations in the overhead line network, and continuously and reliably monitors them. It measures the current, load flow direction and conductor temperature. Faults and other information are transmitted to the control centre and help to identify problems quickly and clearly. In addition, faults are displayed on-site via an ultra-bright LED on the Smart Navigator 2.0.

To test the performance of the Smart Navigator in practice, Westnetz conducted a test phase lasting several months in three regional networks with increased local fault occurrence probability. Four Smart Navigator 2.0 sets were installed at particularly fault-prone locations. During the entire pilot period, they reported all relevant faults reliably and correctly, without a single false alarm.

Smart Navigator 2.0

The Smart Navigator 2.0 digital overhead line short-circuit indicator continuously measures and reports data such as current strength, load flow direction and conductor temperature. In the event of a fault, the fault messages are also transmitted spontaneously to the control center. This means that faults on overhead lines can be localized and rectified much more quickly.



Easy to install: The Smart Navigator 2.0 short-circuit indicators are hooked into the overhead line with an insulating stick without disconnecting the voltage.



A Smart Navigator 2.0 can be coupled with two satellites to ensure optimum overhead line monitoring.

400

Smart Navigator 2.0 sets monitor the overhead lines in the Westnetz GmbH grid area

Product features

- ▶ Intelligent fault detection – reduces outage times
- ▶ Overhead line monitoring – data for the evaluation of the network condition
- ▶ Energy Harvesting – no external auxiliary voltage required and low maintenance
- ▶ Innovative installation – on live conductors and from the ground
- ▶ Remote maintenance – configuration and updates from the control room

Customer benefit

Digital monitoring of overhead lines enables faults to be detected and localized more quickly, which leads to more efficient fault clearance processes. The digital devices can not only indicate faults, but also ensure greater transparency in the overhead line network. This in turn allows conclusions to be drawn for the further expansion of the grid.

Our service crews no longer have to patrol the entire line pole by pole and know in which direction they have to look for the fault.

André Felten

Operations Manager for Low Voltage and Medium Voltage Networks in the Trier Regional Control Centre



About Westnetz GmbH

Westnetz is the electricity and gas distribution network operator in western Germany and a wholly owned subsidiary of the energy company Westenergie AG and thus part of E.ON SE. Westnetz operates the grids of various owners, which are made available to all market participants on a non-discriminatory basis. The grid is built, planned and operated from Emsland to Hunsrück, from the Dutch border to Weserbergland.

About Horstmann GmbH

Die Dipl.-Ing. H. Horstmann GmbH is a medium-sized company based in Heiligenhaus near Düsseldorf (Germany). The company was founded in 1946 by Heinrich Horstmann, and since that time it has been a successful family-owned company. Due to its long experience and continuous investment in research and product development Dipl.-Ing. H. Horstmann GmbH is today recognized as a leading manufacturer in medium voltage technology for:

- ▶ Short-circuit and earth fault indicators
- ▶ Voltage testers and voltage detecting systems
- ▶ Earthing devices and accessories.

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