



DONETZ



HORSTMANN
GERMANY

Erfahrungsbericht

Digitalisation of DONETZ in Dortmund

Power Grid Digitalisation with ComPass D
Dortmunder Netz GmbH



Dortmund's Speicherstraße - Use of ComPass D short-circuit indicators at Dortmunder Netz GmbH

Challenge

Dortmunder Netz GmbH (DONETZ), like almost all grid operators, faces the challenge of modernising its electricity grid in order to meet the increased requirements associated with the energy transition.

The quarter Speicherstraße in Dortmund, a former harbour area, will provide space for around 160 companies in the digital and creative industries going forward. With over 2,000 secondary stations, some of which meet different technical standards, and an electricity grid consisting of 2,262 km of medium-voltage cables, it was necessary to digitalise this infrastructure. One of the biggest challenges was to increase transparency and efficiency in the grid in order to detect faults faster and minimise power outages. In addition, the new technical solutions had to be seamlessly integrated into the existing IT landscape and checked for the highest security standards before a large-scale implementation could be realised.

Solution

To overcome these challenges, DONETZ decided to implement a pilot with the ComPass D short-circuit and earth fault indicators from Horstmann.

These modern devices were initially installed in a local network station and ensured precise detection of short circuits and earth faults. Thanks to their ability to monitor both cable fields and transformer fields, they offered a comprehensive solution for network monitoring. It was also important to support IEC 60870-5-104 communication, which ensured greater flexibility and future-proofing compared to the older MODBUS protocol. The intensive review of cybersecurity by internal IT experts was a key step in ensuring that the devices meet the strict security requirements.

Following a successful pilot phase, a further 20 local network stations were digitally equipped. The combination of remote control, integrated fault detection and training of operating personnel allowed the technology to be standardised and efficiently integrated into network operation.

ComPass D

The ComPass D is a directional fault indicator that has been specially developed for use in medium-voltage networks. In addition to the short-circuit and earth fault functions, the ComPass D can be used for grid monitoring and remote control via Ethernet, making it particularly versatile.



Product features

- ▶ Maximum-precision measured values - More transparency in the control room
- ▶ Clear fault localisation - Quick fault rectification through remote switching
- ▶ Two switching devices can be controlled - Load-break switch and earthing switch
- ▶ Operational management - Directly via IEC 60870-5-104
- ▶ Device maintenance with ComPass Explorer - Also via IP connection



Digital local network station in Speicherstraße

Customer benefits

The introduction of ComPass D short-circuit and earth fault indicators offers DONETZ and its customers considerable benefits. Thanks to the increased transparency in the power grid, faults can be localised and rectified more quickly, which significantly reduces downtimes. The ability to control the local network stations remotely optimises the deployment of technical personnel and reduces the need for on-site visits, especially in times where there is a lack of skilled workers. In addition, the standardisation of the technology improves the long-term maintenance and operation of the network. For customers, this means a more reliable electricity supply and increased security of supply throughout the entire supply area.



Medium-voltage system with control cabinet



ComPass D from Horstmann in medium-voltage fields

We are very satisfied with how the project has been implemented and with the adopted solution. We now look forward to having an expanded view in our network and the associated benefits for our customers.

Ulrich Strätling

NPS Stations- und Systemtechnik, DONETZ -
Dortmunder Netz GmbH



About DONETZ - Dortmunder Netz GmbH

Dortmunder Netz GmbH (DONETZ) is a wholly owned subsidiary of DEW21 Dortmund Energy and Water Supply GmbH, and since January 1st 2007 it has been operating the electricity supply network in Dortmund, the gas supply network in the urban areas of Dortmund and Herdecke and, since 2015, the water supply networks in Dortmund, Herdecke and the districts of Hengsen and Opherdicke in the municipality of Holzwickede. As a large grid company, it has owned the electricity, gas and water grids since 2015.

About Horstmann

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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